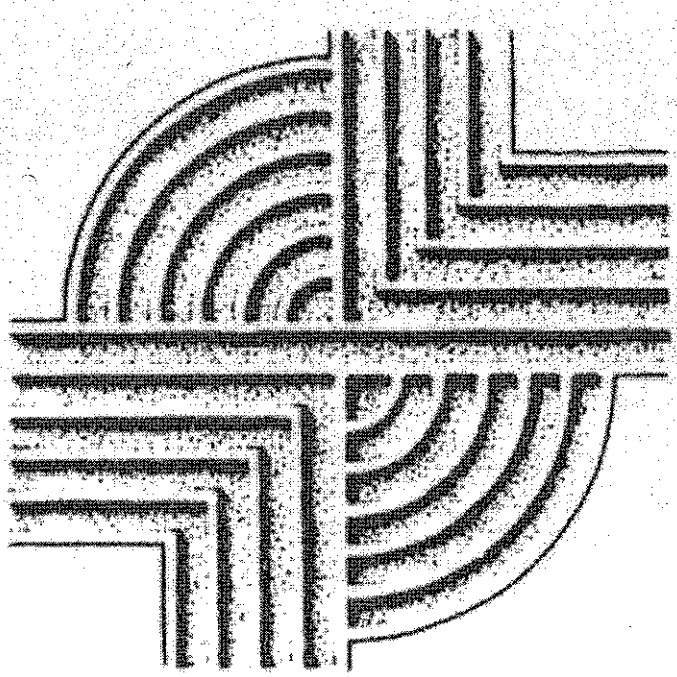
CULTURAL RESOURCES SURVEY OF A PORTION OF THE KAISER TRACT, RICHLAND COUNTY, SOUTH CAROLINA



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CULTURAL RESOURCES SURVEY OF A PORTION OF THE KAISER TRACT, RICHLAND COUNTY, SOUTH CAROLINA

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ABSTRACT

This report provides the results of a cultural resources investigation of the Kaiser tract, situated in northeastern Richland County, about 10 miles northeast of Columbia. The study was conducted by Dr. Michael Trinkley of Chicora Foundation for the Central Carolina Economic Development Alliance and is in anticipation of industrial development. The work is intended to assist the Alliance comply with Section 106 of the National Historic Preservation Act and the regulations codified in 36CFR800.

Historically the area appears to have been sparsely settled during the nineteenth century and even into the early twentieth century there were few farms in the immediate area. To the east is Killian, a small community which developed from the breakup of a large plantation after the Civil War. What twentieth century development there has been in the area appears to have been in close proximity to S-55, Killian Road, which runs along the northern project boundary.

Although I-77 forms the eastern boundary of the project tract and in spite of a major industrial development on the east side of I-77, much of area is essentially rural in nature. As a result the area of potential effects (APE) was defined as 1.0 mile. Three historic sites were identified within the APE, two structures (0474731 and 0474732) at the western edge of the APE and the Killian Baptist Cemetery (0474733) at the eastern edge of the APE, on the western edge of Killian. Of these three resources, only the cemetery is recommended potentially eligible. None of the sites, however, will be affected by any foreseeable development on the project tract.

The archaeological survey consisted of shovel testing at 100 foot intervals along transects laid out at 100 foot intervals through the tract. Most of the study tract had been logged within the past two years, resulting in remnant hardwood stands, much debris, rutting, and extensive areas of erosion. Intact vegetation, consisting of mixed hardwoods and pines, was found only on side slopes. The shovel tests revealed very thin soils overlying clay subsoil.

The archaeological investigations identified three sites (38RD1169, 1171, 1172) on the study tract and one site (38RD1170) immediately adjacent to the southwestern edge of the survey area. All of these sites are lithic scatters, with very limited historic material found on several. The sites are all heavily eroded and extensively damaged by previous cultivation and logging. None evidence good integrity and it is unlikely that any of the sites can address significant research questions. They are all recommended not eligible for inclusion on the National Register.

It is possible that archaeological remains may be encountered in the project area during construction. Construction crews should be advised to report any discoveries of concentrations of artifacts (such as bottles, ceramics, or projectile points) or brick rubble to the project engineer, who should in turn report the material to the State Historic Preservation Office or to Chicora Foundation (the process of dealing with late discoveries is discussed in 36CFR800.13(b)(3)). No construction should take place in the vicinity of these late discoveries until they have been examined by an archaeologist and, if necessary, have been processed according to 36CFR800.13(b)(3).

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INTRODUCTION

The investigation of the proposed 100 acre Kaiser trace development parcel was conducted by Dr. Michael Trinkley of Chicora Foundation, Inc. for Mr. Mark Simmons of the Central Carolina Development Alliance. The development tract is situated in northeastern Richland County, about 10 miles northeast of Columbia and 6 miles south of Blythewood (Figure 1). This particular area of Richland County has seen slow growth since the construction of I-77, and consists of a mix of old farms, new subdivisions or clusters of trailers, and mixed industrial and commercial development.

This work was conducted to assist the Central Carolina Development Alliance comply with Section 106 of the National Historic Preservation Act and the regulations codified in 36CFR800. An initial reconnaissance by Heritage Trust archaeologists, conducted at the request of the S.C. Development Board, identified "one archaeological site" with material from "approximately 8000-5000 years before present" (Judge and Rood 1999). This reconnaissance prompted this intensive cultural resources survey of the proposed tract.

The tract is roughly rectangular, measuring about 2,000 feet north-south by 2,500 feet east-west. The northern boundary is Killian Road (S-55). The eastern boundary is a straight line which runs south-southwest from the I-77 entrance ramp on the slope overlooking a small drainage. The southern boundary is another arbitrary line, placed to incorporate all of the 350 foot contour line and some of the south facing slopes. The western boundary is another arbitrary line, running southwest from Killian Road (Figure 2). The boundaries of the study tract were established to maximize the amount of developable land and as a result largely excludes slopes, wetlands, and other portions of the tract which are not suitable for commercial or industrial development.

Chicora was requested to submit a budgetary proposal for an intensive survey by the Central Carolina Economic Development Alliance on May 24, 2000. A proposal was submitted on June 8, 2000 and a notice to proceed was received June 23, 2000. The archaeological investigation was conducted by Dr. Michael Trinkley. The field crew consisted of Mr. Tom Covington, Ms. Jill Langenburg, Mr. Philip MacArthur, and Ms. Monica Wiggers. The field investigations were conducted on August 14-15 and required 80 person hours. The architectural survey was conducted by the author and required 5 person hours on August 15.

The statewide archaeological site files held by the South Carolina Institute of Archaeology and Anthropology were examined by Mr. Tom Covington on for information pertinent to the project area. Although there were a number of archaeological sites in the general area, none were recorded on or adjacent to the proposed tract.

In addition, the South Carolina Department of Archives and History GIS database was reviewed. There are no National Register of Historic Places buildings, districts, structures, sites, or objects on or within a mile of the project area. There are no recorded architectural sites within a mile of the development tract.

While the project area is adjacent to I-77 and immediately to the west there is an extant industrial development, much of the project area retains a rural character. As a result, we have defined the area of potential effect (APE) for this project to be 1.0 mile. It is unlikely that any foreseeable development activities on the tract will introduce "visual, audible, or atmospheric elements" beyond this one-mile radius. In fact, the development on the east side of I-77 at S-55, which is only 2,500 feet from the study area cannot be detected. Consequently, it is likely that the actual APE will be far less than the 1.0 mile used for this study. Moreover, the area already exhibits a mixture of commercial activity at both ends of S-55 (to the east it connects with SC 555

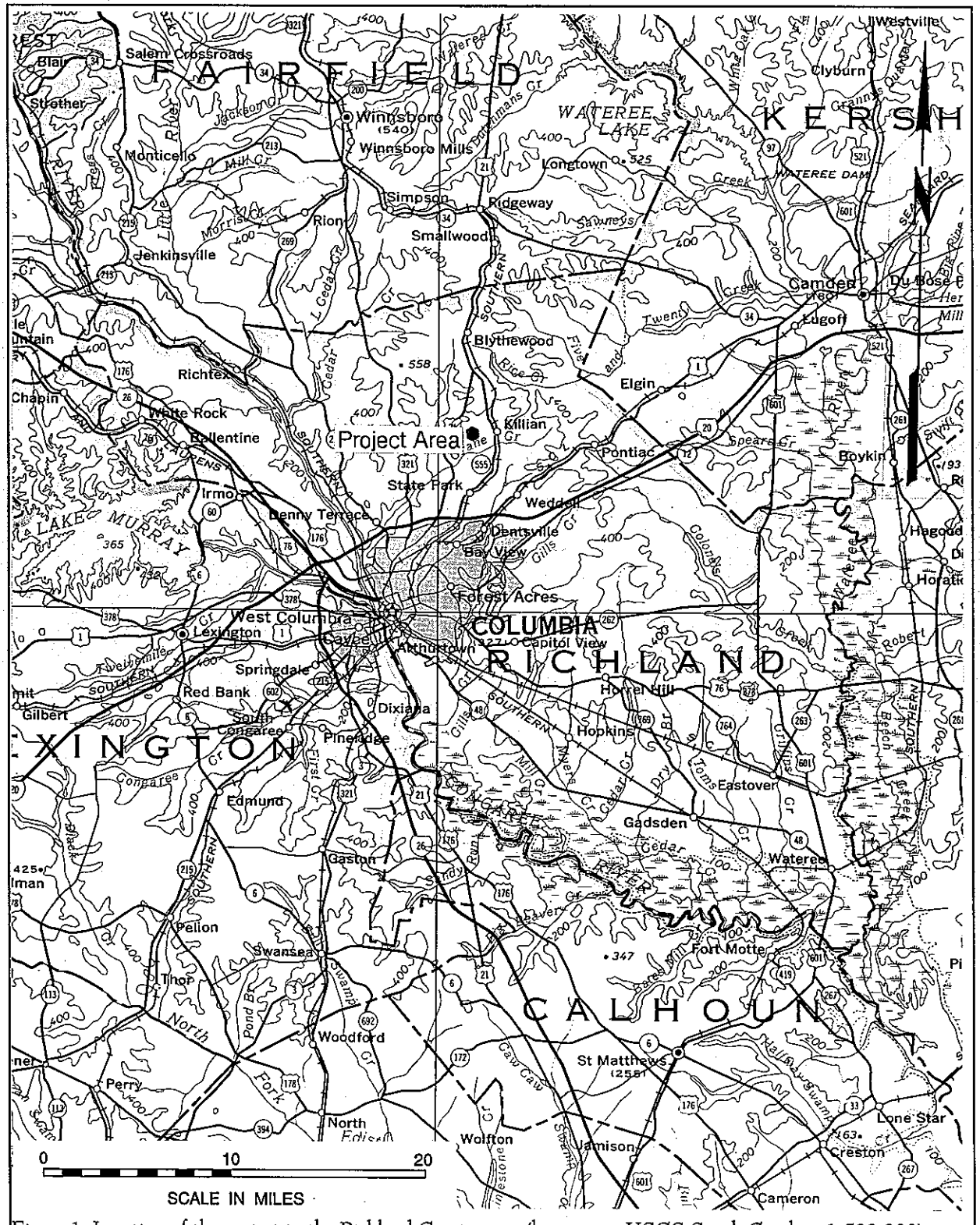

Figure 1. Location of the project in the Richland County area (basemap is USGS South Carolina 1:500,000).

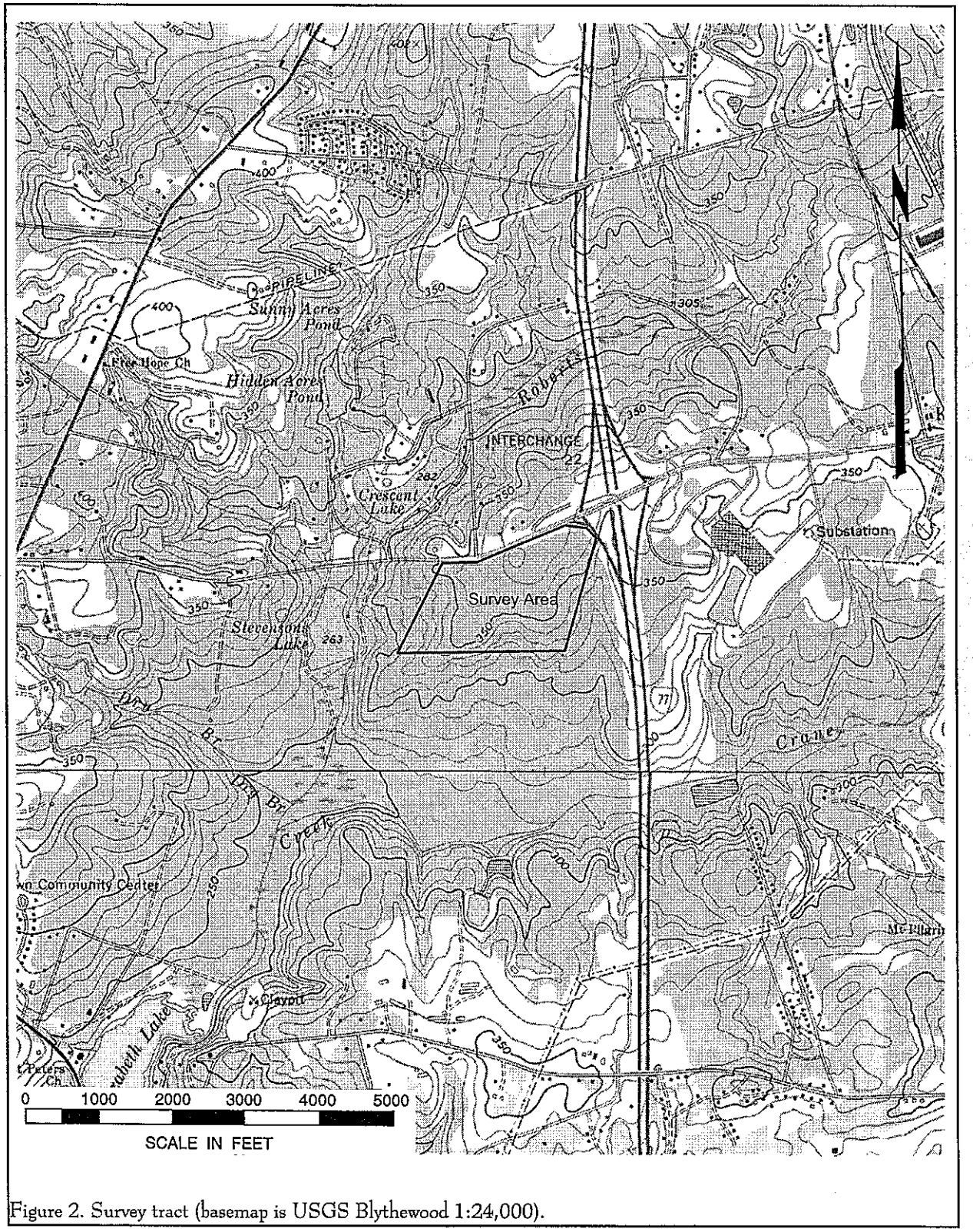

Figure 2. Survey tract (basemap is USGS Blythewood 1:24,000).

and to the west it joins US 21).

We anticipate that the development will involve extensive clearing and grubbing, various soil preparation activities, heavy equipment stagging and movement, increased traffic on the section of S-55 from I-77 to the entrance (about 1,000 feet), the potential for siltation and erosion associated with the clearing and grubbing activities, the potential for increased dust levels during construction, and increased noise levels for short durations associated with the various construction activities.

This report details the investigation of the project area undertaken by Chicora Foundation and the results of that investigation.

NATURAL ENVIRONMENT

Physiographic Province

The project area is situated in northeastern Richland County on a substantial ridgetop overlooking the Crane Creek drainage to the south and Roberts Branch to the west (Figures 1 and 2).

Richland County, situated in the approximate center of South Carolina, is bounded to the southwest by the Congaree River, to the southeast by the Wateree River, to the northeast by Kershaw County, to the north by Fairfield County, as well as sections of both Cedar Creek and the Broad River, and to the northwest by Lexington County.

The county is located within two distinct physiographic provinces — the Piedmont Plateau and the Atlantic Coastal Plain. The northern half of the coastal plain is known as the Sand Hills. About a third of Richland County is found within the Piedmont, separated from the coastal plain by an irregular line, known as the Fall Line, that extends north from the vicinity of Columbia and runs west of US 21 (and the project vicinity) to Blythewood. From Blythewood the Fall Line continues southeast, passing through the project vicinity and entering Kershaw County at the confluence of Twentyfive Mile Creek and Rice Creek.

The project area is technically in the Carolina Sand Hills, an area of discontinuous hilly topography characterized by rounded hills with gentle slopes, moderate relief, and sandy soils. Although technically part of the Coastal Plain geology, the Sand Hills are distinct geographically. Much of the sand was blown into dunes during the Miocene, although weathered clays and very old river deposits are also present. In many cases these sandy deposits lie directly on the crystalline rocks of the Piedmont (Kovacik and Winberry 1987; Murphy 1995).

The study area, therefore, is in close contact with a range of physiographic regions. To the northwest are the dissected plains consisting of the hills and valleys cut by creeks and rivers as they flow toward the coastal plain. Possibly part of the peneplain, the Piedmont is characterized by the dendritic stream patterns. It is also characterized by a range of metavolcanic, quartz, and quartzite materials used by Native Americans for stone tools. To the south is the Coastal Plain, where the topography changes dramatically, the hilly upper Coastal Plain giving way to the broad expanses of relatively flat, level ground associated with the lower Coastal Plain. These areas provide sources for Coastal Plain cherts, also used extensively for tool manufacture.

In the project area the elevations range from about 300 to 380 feet above mean sea level (AMSL). Slopes are steep and most noticeable to the southeast into an intermittent drainage at the edge of I-77 and south, at the southwest edge of the project tract, where the topography slopes down into the area of Crane Creek (which is found at an elevation of about 250 feet AMSL).

Geology and Soils

Most of the rocks of the Piedmont are gneiss and schist, with some marble and quartzite (Hasselton 1974). Some less intensively metamorphosed rocks, such as slate, occur along the eastern part of the province from southern Virginia into Georgia. This area, called the Slate Belt, is characterized by slightly lower ground with wider river valleys. Consequently, the Slate Belt has been favored for reservoir sites (Johnson 1970), as well as prehistoric occupation (see Coe 1964). In Richland County many of the Piedmont soils, such as the Nason-Georgeville unit, are weathered from argillites rich in silica and alumina. Other soils are formed in saprolite that weathered from crystalline rocks and "Carolina slates". Soils from the river floodplains formed in sediment that washed from the uplands of the Piedmont province.

The Sand Hills, as previously mentioned, are characterized by a plain that has generally gentle slopes and elevations of 350 to 500 feet. The soils, like those in the Coastal Plain, are typically unconsolidated marine deposits of light colored sands and kaoline clays. These soils are generally well drained, although some soil series do exhibit fragipans (Lawrence 1978:5).

The project area is situated on Fuquay sands, typical of the soils found on narrow to broad ridgetops and on narrow side slopes. As expected, the slopes, typically under 6%, are smooth and well-rounded (Lawrence 1978:Map 15). These soils, when intact, have an Ap horizon of grayish brown (2.5Y5/2) sand to a depth of about 0.7 foot, although soil colors may include browns, grays, or dark grays. This overlies a A2 horizon of light yellowish brown (10YR6/4) sand to a depth of about 2.9 feet. The A2 horizon may also exhibit soil colors of pale brown, light olive brown, light yellowish brown, or brownish yellow. Below are a series of B horizon soils, usually a yellowish brown (10YR5/6) or occasionally strong brown sandy clay loam (Lawrence 1978:46-47).

Examination of aerial photographs for the project area reveal that in the early twentieth century most of the tract was cultivated, although by the second half of the century much of the tract had been abandoned to scrub vegetation. By the 1970 aerials, the parcel was entirely wooded, with some portions in planted pine.

This suggests that the site area has probably gone through cycles of soil erosion and deposition, with erosion occurring during logging and cultivation, while soils likely built up during periods of forestation. In fact, the 1934 South Carolina Erosion Survey by M.W. Lowry found that this portion of Richland County exhibited moderate sheet erosion (Lowry 1934). Although Richland County was not included in Stanley Trimble's erosion study of the Southern Piedmont, Fairfield County, within only a few miles of the project area, was reported to have lost over a foot of soil through erosion in the nineteenth and early twentieth centuries (Trimble 1974:3). It is part of the area classified by Trimble as having high antebellum erosion land use with postbellum continuation and belonging to his Region III — the Cotton Plantation Area (Trimble 1974:15).

Furthermore, logging in the Carolina Sand Hills will result in the loss of nearly 0.15 tons of soil per acre per year and mechanical site preparation, perhaps used in the mid-1950s to convert the agricultural fields back to woods, might have resulted in the loss of over 1 ton of soil per acre per year (U.S. Department of Agriculture 1983:25).

In 1826 Robert Mills provided very long and detailed descriptions of the different soils typical of Richland County. In the "upper part of the district" he mentions four different classes of lands. Least valuable are those he described as the "sand hills." About these he commented that the "uniform character . . . is so well known as to render a description useless." Regardless, he went on to explain:

> The term sand hills conveys an adequate idea of their sterility and barrenness, and of the composition and nature of the soil. It is particularly adapted to the growth of pease and esculent roots (Mills 1972 [1826]:696).

The survey area, however, might have fallen into Mills' "Fourth class — The first quality pine land . . . . possesses a dark-coloured mould, with a substratum of clay; it is well calculated to produce cotton, wheat, and corn" (Mills 1972 [1826]:696).

Mills, like for other districts, expressed his concern over the treatment lands received in Richland District. Less than 20 years later Edmund Ruffin had a similar opinion of the sand hills and the wasteful cultivation of the land, yet it seems to have had little impact on the planters he met. He observed that:

> The lands through Richland, of middling quality, or rather below. Surface moderately undulating, & sandy mostly. Oak growth more in proportion to the pine than lower. No very good culture or land seen by me (Mathew 1992:261).

In spite of these early warnings, the South Carolina Department of Agriculture, Commerce, and Immigration, as late as 1907, found no reason to remark on the threat of erosion, noting only that "elevated flats can be brought to a high state of fertility by proper methods of farming" and that the soils are "superior for peanuts, sweet potatoes, sorghum, watermelons and the staples, oats, cotton, corn, and some wheat" (State Department of Agriculture, Commerce, and Immigration 1907:255). Richland County boasted of three cotton seed oil mills — far more than the single mills operating in surrounding Fairfield, Kershaw, or Sumter counties (State Department of Agriculture, Commerce, and Immigration 1907:269, 288).

Climate

Elevation, latitude, and distance from the coast work together to affect the climate of South Carolina, including the Sand Hills. In addition, the more westerly mountains block or moderate many of the cold air masses that flow across the state from west to east. Even the very cold air masses which cross the mountains are warmed somewhat by compression before they descend on the Piedmont and adjacent Sand Hills.

Consequently, the climate of Richland County is temperate. The winters are relatively mild and the summers warm and humid. Rainfall in the amount of about 46 inches is adequate, although less than in some neighboring counties. About 27 inches of rain occur during the growing season, with periods of drought not uncommon during the summer months. As Hilliard illustrates, these droughts tended to be localized and tended to occur several years in a row, increasing the hardship on those attempting to recover from the previous year's crop failure (Hilliard 1984:16). Perhaps the best wide-scale example of this was the drought of 1845, which caused a series of very serious grain and food shortages throughout the state.

The average growing season is about 232 days, although early freezes in the fall and late frosts in the spring can reduce this period by as much as 30 or more days (Lawrence 1978:73). Consequently, most cotton planting, for example, did not take place until early May, avoiding the possibility that a late frost would damage the young seedlings.

Floristics

Piedmont forests generally belong to the Oak-Hickory Formation as established by Braun (1950), while she classifies the Sand Hills as part of the Southeast Evergreen Forest Region. Regardless, the potential natural vegetation of the project area is the Oak-Hickory-Pine forest, composed of medium tall to tall forests of broadlead deciduous and needleleaf evergreen trees (Küchler 1964). The major components of this ecosystem include hickory, shortleaf pine, loblolly pine, white oak, and post oak.

Figure 3. Vegetation in the upland portion of the survey tract which has been logged.

Figure 4. More mesic vegetation on the southern slopes of the survey tract.

John Berry rightly comments that "a walk through the most xeric stages of the fall line sandhills would probably be very boring. Such areas are dominated by turkey oaks, scrubby post oaks, and broad expanses of open sandy soil. In the survey tract the pines on these upland soils have been logged out several years ago, leaving primarily scrub hardwoods and a few young pines (Figure 3). There are, however, other econiches. For example, on the more mesic soils pines and mixed hardwoods can be common, dominated by loblolly pines, cedars, southern red oaks, and even pignut and mockernut hickories. In these mesic woods the understory includes dogwoods, sassafras, blackgum, and persimmon (Berry 1980: 103, 114-115). In fact, this is what is seen today on the slopes of the survey tract (Figure 4). One area, on the eastern side of the tract, even revealed a small cane break.

In fact, the general area exhibits considerable ecological diversity. Within 0.5 mile of the site there are several intermittent creeks associated with such trees as pond pine, red maple, and sweet bay. There are shrub layers that are very attractive to a diverse range of mammals, including deer, opossum, and raccoon.

It is this diversity which probably made the project area attractive to Native Americans, who saw the site area as providing a range of different environmental zones in close proximity, not a "boring" or sterile sand wasteland (which admittedly is more typical of some sand hill areas).

Prehistoric Environment

A reconstruction of paleoenvironmental features has gradually emerged within the past several decades and is based on the work of Whitehead (1965, 1967, 1972, 1973) and Watts (1970, 1975, 1980). Unfortunately, our understanding of environmental change is general and is based almost entirely on pollen analysis of lake sediments and buried organic layers situated in Piedmont areas outside South Carolina. The pollen studies give evidence of vegetational changes which in turn provide suggestions concerning climatic change. These studies can be important to the archaeologist because they allow inferences to be drawn on the nature of the cultural-environmental interactions, such as the adaptive shifts human populations made to counter ecological shifts. It is recognized that these inferences must be based on the paleoenvironment, not the extant environment.

Based largely on work from southeastern Virginia and North Carolina, Whitehead (1965) has employed a tripartite division of the preceding 25,000 years: Full Glacial (25,000 - 15,000 B.P.), Late Glacial (15,000 - 10,000 B.P.), and Post-Glacial or Holocene (10,000 B.P. - present).

During the Full Glacial the Coastal Plain was boreal, although he vegetation was sparse, which suggests a relatively dry climate. Voorhies (1974), based

on a paleontological assemblage from east-central Georgia, suggests a cool, moist climate instead. Watts' (1980) work from White Pond at the edge of the Inner Coastal Plain, found jack pine, red spruce, and herbs, which appear to reflect a boreal forest climate. During the Late Glacial period there was a gradual change to a hemlock-northern hardwoods forest type and eventually to a modern condition. From White Pond, Watts (1980) identified a forest dominated by oak, hickory, beech, and ironwood and interprets this assemblage as a mesic deciduous forest typical of a cool and moist environment.

The mesic deciduous forest began to change early in the Holocene and was replaced by a more xeric forest comprised of modern flora. Again from White Pond, Watts (1980) notes the rapid loss of hickory, beech, and ironwood after 9,500 B.P. with the equally rapid rise of southern pine species. The oak species remain, and sweet gum and tupelo are found. For a brief synopsis of the environmental changes occurring around 10,000 B.P. the discussion by Anderson and O'Steen (1992:3) is particularly useful, especially since it recognizes the different zones within South Carolina.

An essentially modern flora is postulated by Whitehead (1965) and Watts (1971) by 5,000 B.P. with the spread of oak-hickory forests. But this, however, fails to recognize the extraordinary importance of the changes occurring during this period. As Sassaman and Anderson note:

> the period of mid-Holocene global warming referred to variously as the Altithermal, Hypsithermal, and Climatic Optimum *is* the Middle Archaic Period, as its effects on vegetation and fauna are considered to be so dramatic that they completely reconfigured patterns of human settlement, subsistence, social relations, and technology (Sassaman and Anderson 1994:6).

Unfortunately, as Sassaman and Anderson note, there are relatively few data available for South Carolina and the situation, even now, is far from clear. In fact, while there are mounting data arguing for dramatic changes in the American Midwest, the evidence from the Southeast is, at best, ambiguous. Sassaman and Anderson (1994:7-12) review the available data without arriving at any widely accepted consensus.

When the palynological data are explored, there is evidence that pines advanced in the Coastal Plain, but may have been held back, at least to some degree, in the Piedmont. This spread of pine, it seems, may be associated with the shift of Middle Archaic populations into the upper portions of the state, or at least helped focus attention on "oases of hydric and mesic communities" (Sassaman and Anderson 1994:10).

If geological and soils evidence is examined, there seem to be two focused camps — those arguing that in general South Carolina was fairly moist and those who see cycles of limited moisture followed chronic dry conditions. Although there are too few data to support one proposition over the other, acceptance of cycling might help explain a broad range of site conditions. Erosion seen in the geological record may be from either periods of wet weather or from dry conditions with the denuding of the landscape. Regardless, these erosional periods may explain at least some of the Middle Archaic stratigraphic profiles.

PREHISTORIC AND HISTORIC SYNOPSIS

Prehistoric Overview

Overviews for South Carolina's prehistory, while of differing lengths and complexity, are available in virtually every compliance report prepared. There are, in addition, some "classic" sources well worth attention, such as Joffre Coe's *Formative Cultures* (Coe 1964), as well as some new general overviews (such as Sassaman et al. 1990 and Goodyear and Hanson 1989). Also extremely helpful, perhaps even essential, are a handful of recent local synthetic statements, such as that offered by Sassaman and Anderson (1994) for the Middle and Late Archaic and by Anderson et al. (1992) for the Paleoindian and Early Archaic. Only a few of the many sources are included in this study, but they should be adequate to give the reader a "feel" for the area and help establish a context for the various sites identified in the study areas. For those desiring a more general synthesis, perhaps the most readable and well balanced is that offered by Judith Bense (1994), *Archaeology of the Southeastern United States: Paleoindian to World War I*. Figure 19 offers a generalized view of South Carolina's cultural periods.

Paleoindian Period

The Paleoindian Period, most commonly dated from about 12,000 to 10,000 B.P., is evidenced by basally thinned, side-notch projectile points; fluted, lanceolate projectile points, side scrapers, end scrapers; and drills (Coe 1964; Michie 1977; Williams 1965). Oliver (1981, 1985) has proposed to extend the Paleoindian dating in the North Carolina Piedmont to perhaps as early as 14,000 B.P., incorporating the Hardaway Side-Notched and Palmer Corner-Notched types, usually accepted as Early Archaic, as representatives of the terminal phase. This view, verbally suggested by Coe for a number of years, has considerable technological appeal.[1] Oliver suggests a continuity from the Hardaway Blade through the Hardaway-Dalton to the Hardaway Side-Notched, eventually to the Palmer Side-Notched (Oliver 1985:199-200). While convincingly argued, this approach is not universally accepted.

The Paleoindian occupation, while widespread, does not appear to have been intensive. Artifacts are most frequently found along major river drainages, which Michie interprets to support the concept of an economy "oriented toward the exploitation of now extinct mega-fauna" (Michie 1977:124). Survey data for Paleoindian tools, most notably fluted points, is somewhat dated, but has been summarized by Charles and Michie 1992). They reveal a widespread distribution across the state (see also Anderson 1992b:Figure 5.1) with at least several concentrations relating to intensity of collector activity. What is clear is that points are found fairly far removed from the origin of the raw material. Charles and Miche suggest that this may "imply a geographically extensive settlement system" (Charles and Michie 1992:247).

Although data are sparse, one of the more attractive theories that explains the widespread distribution of Paleoindian sites is the model tracking the replacement of a high technology forager (or HTF) adaptation by a "progressively more generalized band/microband foraging adaption" accompanied by increasingly distinct regional traditions (perhaps

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[1] While never discussed by Coe at length, he did observe that many of the Hardaway points, especially from the lowest contexts, had facial fluting or thinning which, "in cases where the side-notches or basal portions were missing, . . . could be mistaken for fluted points of the Paleo-Indian period" (Coe 1964:64). While not an especially strong statement, it does reveal the formation of the concept. Further insight is offered by Ward's (1983:63) all too brief comments on the more recent investigations at the Hardaway site (see also Daniel 1992).

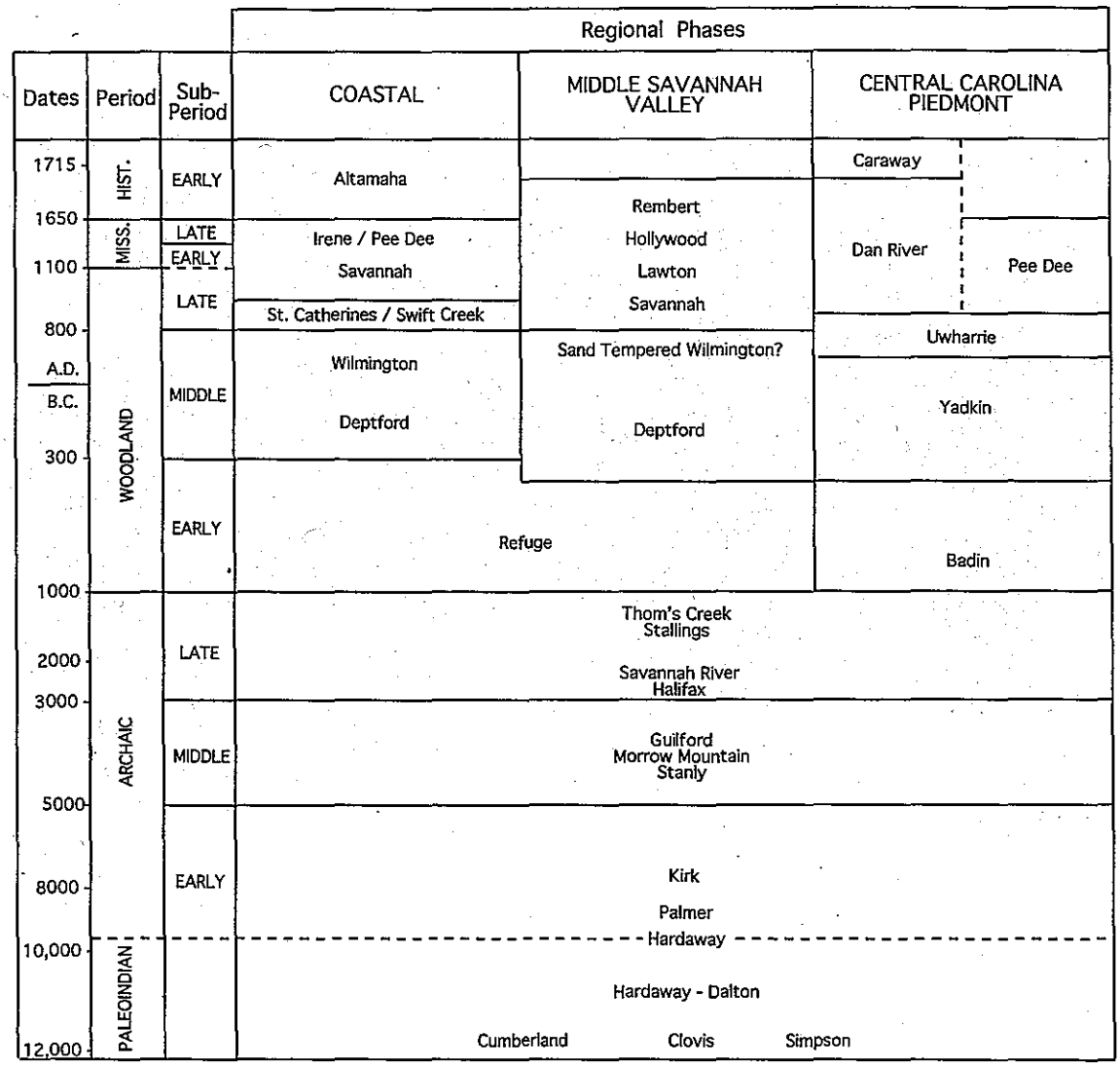

Figure 5. A generalized cultural sequence for South Carolina (partially adapted from Coe 1964:Figure 116).

reflecting movement either along or perhaps even between river drainages) (Anderson 1992b:46).

Distinctive projectile points include lanceolates such as Clovis, Dalton, perhaps the Hardaway, and Big Sandy (Coe 1964; Phelps 1983; Oliver 1985). A temporal sequence of Paleoindian projectile points was proposed by Williams (1965:24-51), but according to Phelps (1983:18) there is little stratigraphic or chronometric evidence for it. While this is certainly true, a number of authors, such as Anderson (1992a) and Oliver (1985) have assembled impressive data sets. We are inclined to believe that while often not conclusively proven by stratigraphic excavations (and such proof may be an unreasonable expectation), there is a large body of circumstantial evidence. The weight of this evidence tends to provide considerable support.

Unfortunately, relatively little is known about Paleoindian subsistence strategies, settlement systems, or social organization (see, however, Anderson 1992b for an excellent overview and synthesis of what is known). Generally, archaeologists agree that the Paleoindian groups were at a band level of society, were nomadic, and were both hunters and foragers. While population density, based on isolated finds, is thought to have been low, Walthall suggests that toward the end of the period, "there was an increase in population density and in territoriality and that a number of new resource areas were beginning to be exploited" (Walthall 1980:30).

Archaic Period

The Archaic Period, which dates from 10,000 to 3,000 B.P.[2], does not form a sharp break with the Paleoindian Period, but is a slow transition characterized by a modern climate and an increase in the diversity of material culture. Associated with this is a reliance on a broad spectrum of small mammals, although the white tailed deer was likely the most commonly exploited animal. Archaic period assemblages, exemplified by corner-notched and broad-stemmed projectile points, are fairly common, perhaps because the swamps and drainages offered especially attractive ecotones.

Many researchers have reported data suggestive of a noticeable population increase from the Paleoindian into the Early Archaic. This has tentatively been associated with a greater emphasis on foraging. Diagnostic Early Archaic artifacts include the Kirk Corner Notched point. As previously discussed, Palmer points may be included with either the Paleoindian or Archaic period, depending on theoretical perspective. As the climate became hotter and drier than the previous Paleoindian period, resulting in vegetational changes, it also affected settlement patterning as evidenced by a long-term Kirk phase midden deposit at the Hardaway site (Coe 1964:60). This is believed to have been the result of a change in subsistence strategies.

Settlements during the Early Archaic suggest the presence of a few very large, and apparently intensively occupied, sites which can best be considered base camps. Hardaway might be one such site. In addition, there were numerous small sites which produce only a few artifacts — these are the "network of tracks" mentioned by Ward (1983:65). The base camps produce a wide range of artifact types and raw materials

[2] The terminal point for the Archaic is no clearer than that for the Paleoindian and many researchers suggest a terminal date of 4,000 B.P. rather than 3,000 B.P. There is also the question of whether ceramics, such as the fiber-tempered Stallings ware, will be included as Archaic, or will be included with the Woodland. Oliver, for example, argues that the inclusion of ceramics with Late Archaic attributes "complicates and confuses classification and interpretation needlessly" (Oliver 1981:20). He comments that according to the original definition of the Archaic, it "represents a preceramic horizon" and that "the presence of ceramics provides a convenient marker for separation of the Archaic and Woodland periods (Oliver 1981:21). Others would counter that such an approach ignores cultural continuity and forces an artificial, and perhaps unrealistic, separation. Sassaman and Anderson (1994:38-44), for example, include Stallings and Thom's Creek wares in their discussion of "Late Archaic Pottery." While this issue has been of considerable importance along the Carolina and Georgia coasts, it has never affected the Piedmont, which seems to have embraced pottery far later, well into the conventional Woodland period. The importance of the issue in the Sandhills, unfortunately, is not well known.

which has suggested to many researchers long-term, perhaps seasonal or multi-seasonal, occupation. In contrast, the smaller sites are thought of as special purpose or foraging sites (see Ward 1983:67).

Middle Archaic (8,000 to 6,000 B.P.) diagnostic artifacts include Morrow Mountain, Guilford, Stanly and Halifax projectile points. Much of our best information on the Middle Archaic comes from sites investigated west of the Appalachian Mountains, such as the work by Jeff Chapman and his students in the Little Tennessee River Valley (for a general overview see Chapman 1977, 1985a, 1985b). There is good evidence that Middle Archaic lithic technologies changed dramatically. End scrapers, at times associated with Paleoindian traditions, are discontinued, raw materials tend to reflect the greater use of locally available materials, and mortars are initially introduced. Associated with these technological changes there seem to also be some significant cultural modifications. Prepared burials begin to more commonly occur and storage pits are identified. The work at Middle Archaic river valley sites, with their evidence of a diverse floral and faunal subsistence base, seems to stand in stark contrast to Caldwell's Middle Archaic "Old Quartz Industry" of Georgia and the Carolinas, where axes, choppers, and ground and polished stone tools are very rare.

Among the most common of all Middle Woodland artifacts is the Morrow Mountain Stemmed projectile point. Originally divided into two varieties by Coe (1964:37,43) based primarily on the size of the blade and the stem. Morrow Mountain I points had relatively small triangular blades with short, pointed stems. Morrow Mountain II points had longer, narrower blades with long, tapered stems. Coe suggested a temporal sequence from Morrow Mountain I to Morrow Mountain II. While this has been rejected by some archaeologists, who suggest that the differences are entirely related to the life-stage of the point, the debate is far from settled and Coe has considerable support for his scenario.

The Morrow Mountain point is also important in our discussions since it represents a departure from the Carolina Stemmed Tradition. Coe has suggested that the groups responsible for the Middle Archaic Morrow Mountain (and the later Guilford points) were intrusive ("without any background" in Coe's words) into the North Carolina Piedmont, from the west, and were contemporaneous with the groups producing Stanly points (Coe 1964:122-123; see also Phelps 1983:23). Phelps, building on Coe, refers to the Morrow Mountain and Guilford as the "Western Intrusive horizon." Sassaman (1995) has recently proposed a scenario for the Morrow Mountain groups which would support this west-to-east time-transgressive process. Abbott and his colleagues, perhaps unaware of Sassaman's data, dismiss the concept, commenting that the shear distribution and number of these points "makes this position wholly untenable" (Abbott et al. 1995:9).

The controversy surrounding Morrow Mountain also includes its posited date range. Coe (1964:123) did not expect the Morrow Mountain to predate 6500 B.P., yet more recent research in Tennessee reveals a date range of about 7500 to 6500 B.P. Sassaman and Anderson (1994:24) observe that the South Carolina dates have never matched the antiquity of their more western counterparts and suggest continuation to perhaps as late as 5500 B.P. In fact they suggest that even later dates are possible since it can often be difficult to separate Morrow Mountain and Guilford points.

A recently defined point is the MALA. The term is an acronym standing for Middle Archaic and Late Archaic, the strata in which these points were first encountered at the Pen Point site (38BR383) in Barnwell County, South Carolina (Sassaman 1985). These stemmed and notched lanceolate points were originally found in a context suggesting a single-episode event with variation not based on temporal variation. The original discussion was explicitly worded to avoid application of a typology, although as Sassaman and Anderson (1994:27) note, the "type" has spread into more common usage. There are possible connections with both the Halifax points of North Carolina and the Benton points of the middle Tennessee River valley, while the "heartland" for the MALA appears confined to the lower middle Coastal Plain of South Carolina.

The available information has resulted in a variety of competing settlement models. Some argue for

increased sedentism and a reduction of mobility (see Goodyear et al. 1979:111). Ward argues that the most appropriate model is one which includes relatively stable and sedentary hunters and gatherers "primarily adapted to the varied and rich resource base offered by the major alluvial valleys" (Ward 1983:69). While he recognizes the presence of "inter-riverine" sites, he discounts explanations which focus on seasonal rounds, suggesting "alternative explanations . . . [including] a wide range of adaptive responses." Most importantly, he notes that:

> the seasonal transhumance model and the sedentary model are opposite ends of a continuum, and in all likelihood variations on these two themes probably existed in different regions at different times throughout the Archaic period (Ward 1983:69).

Others suggest increased mobility during the Archaic (see Cable 1982). Sassaman (1983) has suggested that the Morrow Mountain phase people had a great deal of residential mobility, based on the variety of environmental zones they are found in and the lack of site diversity. The high level of mobility, coupled with the rapid replacement of these points, may help explain the seemingly large numbers of sites with Middle Archaic assemblages. Curiously, the later Guilford phase sites are not as widely distributed, perhaps suggesting that only certain micro-environments were used (cf. Ward [1983:68-69] who would likely reject the notion that substantially different environmental zones are, in fact, represented).

Recently Abbott et al. argue for a combination of these models, noting that the almost certain increase in population levels probably resulted in a contraction of local territories. With small territories there would have been significantly greater pressure to successfully exploit the limited resources by more frequent movement of camps. They discount the idea that these territories could have been exploited from a single base camp without horticultural technology. Abbott and his colleagues conclude, "increased residential mobility under such conditions may in fact represent a common stage in the development of sedentism" (Abbott et al. 1995:9).

From excavations at a Sandhills site in Chesterfield County, South Carolina, Gunn and his colleague (Gunn and Wilson 1993) offer an alternative model for Middle Archaic settlement. He accepts that the uplands were desiccated from global warming, but rather than limiting occupation, this environmental change made the area more attractive for residential base camps. Gunn and Wilson suggest that the open, or fringe, habitat of the upland margins would have been attractive to a wide variety of plant and animal species.

The Late Archaic, usually dated from 6,000 to 3,000 or 4,000 B.P., is characterized by the appearance of large, square stemmed Savannah River projectile points (Coe 1964). These people continued to intensively exploit the uplands much like earlier Archaic groups with, the bulk of our data for this period coming from the Uwharrie region in North Carolina.

One of the more debated issues of the Late Archaic is the typology of the Savannah River Stemmed and its various diminutive forms. Oliver, refining Coe's (1964) original Savannah River Stemmed type and a small variant from Gaston (South 1959:153-157), developed a complete sequence of stemmed points that decrease uniformly in size through time (Oliver 1981, 1985). Specifically, he sees the progression from Savannah River Stemmed to Small Savannah River Stemmed to Gypsy Stemmed to Swannanoa from about 5000 B.P. to about 1,500 B.P. He also notes that the latter two forms are associated with Woodland pottery.

This reconstruction is still debated with a number of archaeologists expressing concern with what they see as typological overlap and ambiguity. They point to a dearth of radiocarbon dates and good excavation contexts at the same time they express concern with the application of this typology outside the North Carolina Piedmont (see, for a synopsis, Sassaman and Anderson 1990:158-162, 1994:35).

In addition to the presence of Savannah River points, the Late Archaic also witnessed the introduction of steatite vessels (see Coe 1964:112-113; Sassaman 1993), polished and pecked stone artifacts, and grinding stones. Some also include the introduction of fiber-tempered pottery about 4000 B.P. in the Late Archaic (for a discussion see Sassaman and Anderson 1994:38-

44). This innovation is of special importance along the Georgia and South Carolina coasts, but seems to have had only minimal impact in the uplands of South or North Carolina.

There is evidence that during the Late Archaic the climate began to approximate modern climatic conditions. Rainfall increased resulting in a more lush vegetation pattern. The pollen record indicates an increase in pine which reduced the oak-hickory nut masts which previously were so widespread. This change probably affected settlement patterning since nut masts were now more isolated and concentrated. From research in the Savannah River valley near Aiken, South Carolina, Sassaman has found considerable diversity in Late Archaic site types with sites occurring in virtually every upland environmental zone. He suggests that this more complex settlement pattern evolved from an increasingly complex socio-economic system. While it is unlikely that this model can be simply transferred to the Sandhills of South Carolina without an extensive review of site data and micro-environmental data, it does demonstrate one approach to understanding the transition from Archaic to Woodland.

Woodland Period

As previously discussed, there are those who see the Woodland beginning with the introduction of pottery. Under this scenario the Early Woodland may begin as early as 4,500 B.P. and continued to about 2,300 B.P. Diagnostics would include the small variety of the Late Archaic Savannah River Stemmed point (Oliver 1985) and pottery of the Stallings and Thoms Creek series. These sand tempered Thoms Creek wares are decorated using punctations, jab-and-drag, and incised designs (Trinkley 1976). Also potentially included are Refuge wares, also characterized by sandy paste, but often having only a plain or dentate-stamped surface (Waring 1968). Others would have the Woodland beginning about 3,000 B.P. and perhaps as late as 2,500 B.P. with the introduction of pottery which is cord-marked or fabric-impressed and suggestive of influences from northern cultures.

There remains, in South Carolina, considerable ambiguity regarding the pottery series found in the Sandhills and their association with coastal plain and piedmont types. The earliest pottery found at many sites may be called either Deptford or Yadkin, depending on the research or their inclination at any given moment.

The Deptford phase, which dates from 3050 to 1350 B.P., is best characterized by fine to coarse sandy paste pottery with a check stamped surface treatment. The Deptford settlement pattern involves both coastal and inland sites.

Inland sites such as 38AK228-W, 38LX5, 38RD60, and 38BM40 indicate the presence of an extensive Deptford occupation on the Fall Line and the Inner Coastal Plain/Sand Hills, although sandy, acidic soils preclude statements on the subsistence base (Anderson 1979; Ryan 1972; Trinkley 1980). These interior or upland Deptford sites, however, are strongly associated with the swamp terrace edge, and this environment is productive not only in nut masts, but also in large mammals such as deer. Perhaps the best data concerning Deptford "base camps" comes from the Lewis-West site (38AK228-W), where evidence of abundant food remains, storage pit features, elaborate material culture, mortuary behavior, and craft specialization has been reported (Sassaman et al. 1990:96-98; see also Sassaman 1993 for similar data recovered from 38AK157).

Further to the north and west, in the Piedmont, the Early Woodland is marked by a pottery type defined by Coe (1964:27-29) as Badin.[3] This pottery is identified as having very fine sand in the paste with an occasional pebble. Coe identified cord-marked, fabric-marked, net-impressed, and plain surface finishes. Beyond this pottery little is known about the makers of the Badin wares and relatively few of these sherds are reported from South Carolina sites.

[3] The ceramics suggest clear regional differences during the Woodland which seem to only be magnified during the later phases. Ward (1983:71), for example, notes that there "marked distinctions" between the pottery from the Buggs Island and Gaston Reservoirs and that from the south-central Piedmont.

Somewhat more information is available for the Middle Woodland, typically given the range of about 2,300 B.P. to 1,200 B.P. In the Piedmont and even into the Sand Hills, the dominant Middle Woodland ceramic type is typically identified as the Yadkin series. Characterized by a crushed quartz temper the pottery includes surface treatments of cord-marked, fabric-marked, and a very few linear check-stamped sherds (Coe 1964:30-32). It is regrettable that several of the seemingly "best" Yadkin sites, such as the Trestle site (31An19) explored by Peter Cooper (Ward 1983:72-73), have never been published.

Yadkin ceramics are associated with medium-sized triangular points, although Oliver (1981) suggests that a continuation of the Piedmont Stemmed Tradition to at least 1650 B.P. coexisted with this Triangular Tradition. The Yadkin in South Carolina has been best explored by research at 38SU83 in Sumter County (Blanton et al. 1986) and at 38FL249 in Florence County (Trinkley et al. 1993)

In some respects the Late Woodland (1,200 B.P. to 400 B.P.) may be characterized as a continuation of previous Middle Woodland cultural assemblages. While outside the Carolinas there were major cultural changes, such as the continued development and elaboration of agriculture, the Carolina groups settled into a lifeway not appreciably different from that observed for the previous 500-700 years. From the vantage point of the Middle Savannah Valley Sassaman and his colleagues note that, "the Late Woodland is difficult to delineate typologically from its antecedent or from the subsequent Mississippian period" (Sassaman et al. 1990:14). This situation would remain unchanged until the development of the South Appalachian Mississippian complex (see Ferguson 1971).

Historical Synopsis

There are several histories of Richland County which should be consulted for more detailed information concerning the project area, including Green's *A History of Richland County* (Green 1932) and Moore's (1993) *Columbia and Richland County: A South Carolina Community*. This synopsis will only briefly cover the major historic influences on the region.

While the coastal region has received much of the historical research, the interior of the state is equally interesting. Although Carolina was settled by the English as a small cog in the mercantile system, the early economy was based more on Indian trade, ranching, subsistence agriculture, and the harvesting of forest products — all forms of rudimentary plunder — than on the production of raw materials so essential to the wealth and power of England. By 1700, only 20 years after the founding of Charles Towne, the trading post at the Congarees (Congaree Creek near Columbia), was well established (see Michie n.d.). This post was on the path from Charleston to Keowee, the capital of the Cherokee Nation, while other paths lead from the Congarees to the Creek and Catawba nations. It was this pattern of Indian-White relations which lead to the death of six out of every seven Native Americans along the South Carolina coast.

The Yemassee War (1715-1716) resulted in many of the Native American groups in South Carolina being either destroyed, enslaves, or driven out of the region. After the defeat of the Indian threat, the General Assembly opened Indian lands to settlement and in 1718 Fort Congaree was established at the Congarees to protect settlers in the region. Fort Congaree was abandoned and later replaced by Fort Granby, further to the north. The project area, however, was far from safe, apparently being part of the undivided Cherokee and Catawba hunting ground.

When South and North Carolina were divided in the early 1700s there were no interior settlements. In 1730 George II ordered that eleven townships be established in the back country to promote settlement. Within each township, a town would be drawn up fronting the river and each settler would receive a town lot and 50 acres of plantation lands for each family member. Two of these townships, Amelia and Saxe Gotha, are south and west of Columbia and a third, Fredericksburg was located to the east, in the Camden area. By the late 1730s settlers were moving into the area between the Wateree and Congaree rivers. These first settlers included not only South Carolinians from the coastal region, but also individuals from Pennsylvania, Maryland, and Virginia. Nevertheless, DeBrahm's *Map of South Carolina and a Part of Georgia* from 1757 shows northern Richland County as

uncharted — and likely very sparsely settled. Even as late as 1773, James Cook shows little activity in this region on his *Map of the Province of South Carolina*.

Settlement in the region was largely spurred by the Indian attacks on Scotch-Irish settlements in Pennsylvania and Virginia during the French and Indian War. A wave of immigration flooded the Wateree region with the defeat of Braddock in Virginia in 1755 (Oliphant 1964:125).

The American Revolution had little impact on the project area. Although Camden to the west fell to the British in 1780, a skirmish at Fort Granby to the south in 1781 was won by the Americans, who took possession of the fort. Additional skirmishes were also fought at Friday's Ferry and Juniper Spring in nearby Lexington County (Lipscomb 1991). It seems that most of the region's farmers were supportive of the patriot forces. By 1782 the British had been forced out of the upcountry.

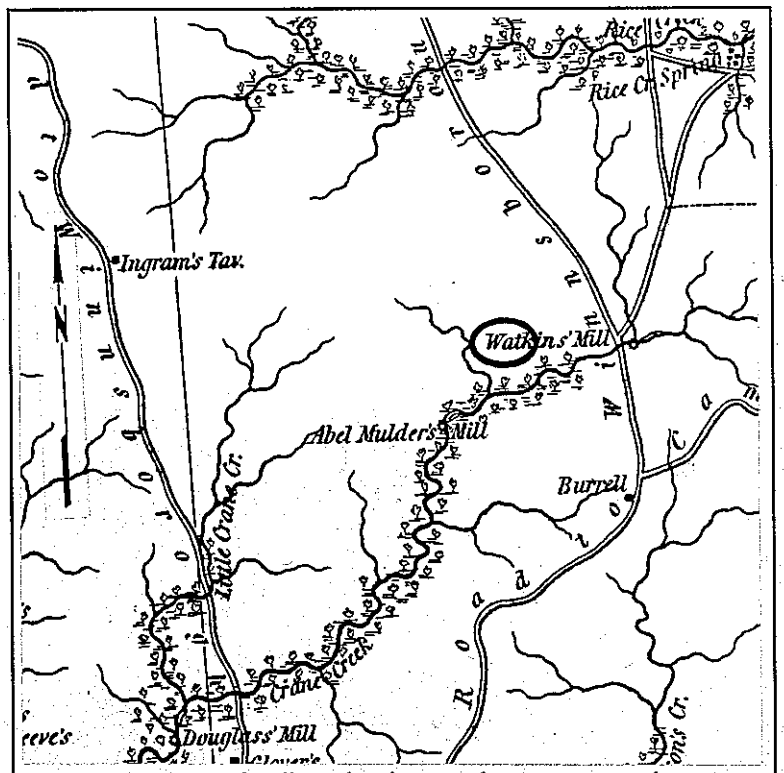

Figure 6. A portion of Mills' *Atlas* showing the project area about 1826.

Richland District is one of seven districts or counties which were taken from the Camden District (originally formed in 1768). Created in 1785 Richland was the result of increased interior population and demand for local government. Because of Columbia's central location, it became the state capital in 1786, although it wasn't until the promotion of the cotton gin in the 1790s that cotton became the economic backbone of the region. Mills (1972 [1826]:697) remarked that "everything is neglected for the culture of cotton," likely because of the rich lands around the new capital yielded upwards of 500 pounds of cotton per acre. Mills' 1825 *Atlas* shows the gradual increase in plantations spreading out around Columbia, although the project area continues to shown as unsettled (Figure 6). To the southeast of the project, however, is Watkins Mill, east of what would eventually become SC 555 and Killians.

The dependence on cotton resulted in the failure to diversify crops and establish any meaningful industry (see Adams and Trinkley 1992 for a discussion of the Columbia Canal and Trinkley 1993 for a discussion of the Palmetto Foundry). It also resulted in the number of African American slaves increasing from 1,451 in 1790 (when there were 2,479 white residents) to 3,168 in 1800 (at which time there were only 2,929 whites in the county). This disparity of population continued until 1920 (see Figure 7).

Just as the area saw little activity during the American Revolution, the Civil War made little impact in the northern Richland County area. In fact, it is likely that the greatest action was seen at the end of the war in 1865, when General William T. Sherman marched toward Columbia rather than Charleston as was expected. Sherman crossed the Saluda River, north of Columbia, and moved into the land between the Saluda and Broad rivers. Part of his force (the 20th Corps) moved on into Fairfield County, while another group turned east and entered Columbia, crossing the Broad River near the present crossing of Broad River Road and I-126. The 17th Corps, upon leaving

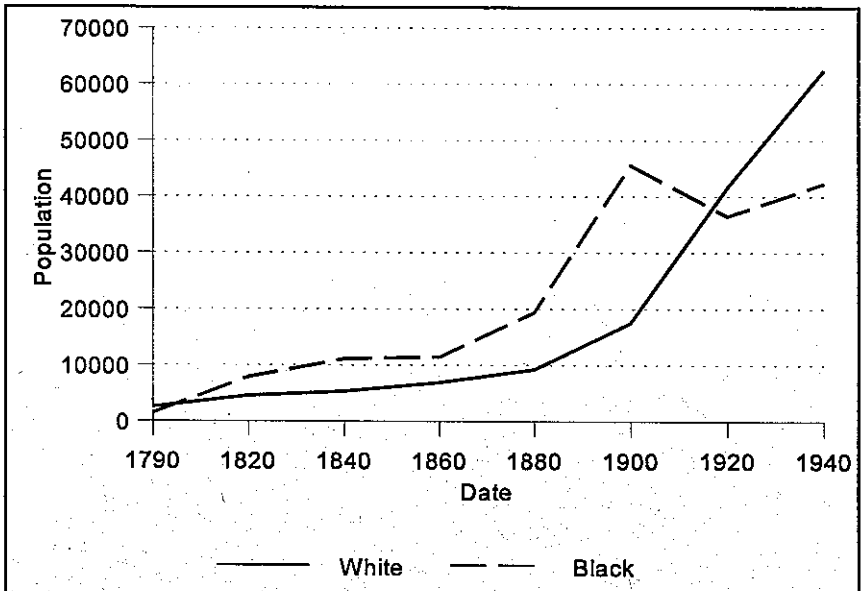

Figure 7. White and black population change in Richland County.

Columbia, followed the route of what is today SC 555 north to Winnsboro, while another wing moved northward further to the east. There are no specific comments concerning the Killian area, although it is clear that considerable activity took place in the vicinity. One account remarks that

> on the 20th the command moved without opposition to Dako [Ridgeway] Station, seventeen miles north of the city [Columbia]. Details were engaged in destroying the railroad up to this point, and on the following morning one brigade from each division was detached to move along and thoroughly destroy the railroad (OR 98, pp. 379-380).

While another explains that the general vicinity was "high and rolling, with occasional outcroppings of the granite formation, a more fertile region and better cultivated than any passed over in South Carolina" (OR 98, p. 188). Yet another account remarked, "the country on our route to-day was a rich one, and forage and supplies were plentiful. The soil was a good, rich loam, with subsoil of yellow or red clay" (OR 98 p. 687).

By this time Killian was mapped as a post office, although Neuffer reports that Killian was "named for a family who lived . . . in . . . a great mansion across the railroad" (Neuffer 1981:9). Moore (1993:186) also suggests that Killian's was a training or parade ground for Confederate troops. Nevertheless, there is no mention of the plantation or any special commissary stores in this area.

The immediate postbellum period was difficult for many in South Carolina — black and white alike. The loss of property and life, the near total destruction of transportation networks and industrial facilities, combined with the collapse of traditional financing and slave labor, created a situation of exceptional misery. The Union failed to follow through on provisions to ensure the safety, education, and self-sufficiency of its new black citizens and the South sought measures to re-establish the old order. Contracts, and eventually the Black Codes, created something approaching a new form of slavery.

By 1880 there were 21 grist mills, four foundries, 12 lumber mills, and 17 turpentine mills in Richland County capitalized at just under half a million dollars. These industrial activities were largely small operations — only one of the grist mills, for example, was a merchant mill. The rest were scattered around the county and ground corn into meal for immediate neighborhood wants, operating one or two days a week. Agricultural activities were little more focused. The county boasted only one sower, 50 reapers, and three sulky plows, although there were over 2,200 guano distributors and nearly 750 harrows. The vast majority of agricultural activities were still conducted by hand, with over 85% of the labor supplied by blacks. There were 1,540 white owned farms operated by blacks, and the wage system (with daily wages ranging from 30¢ to

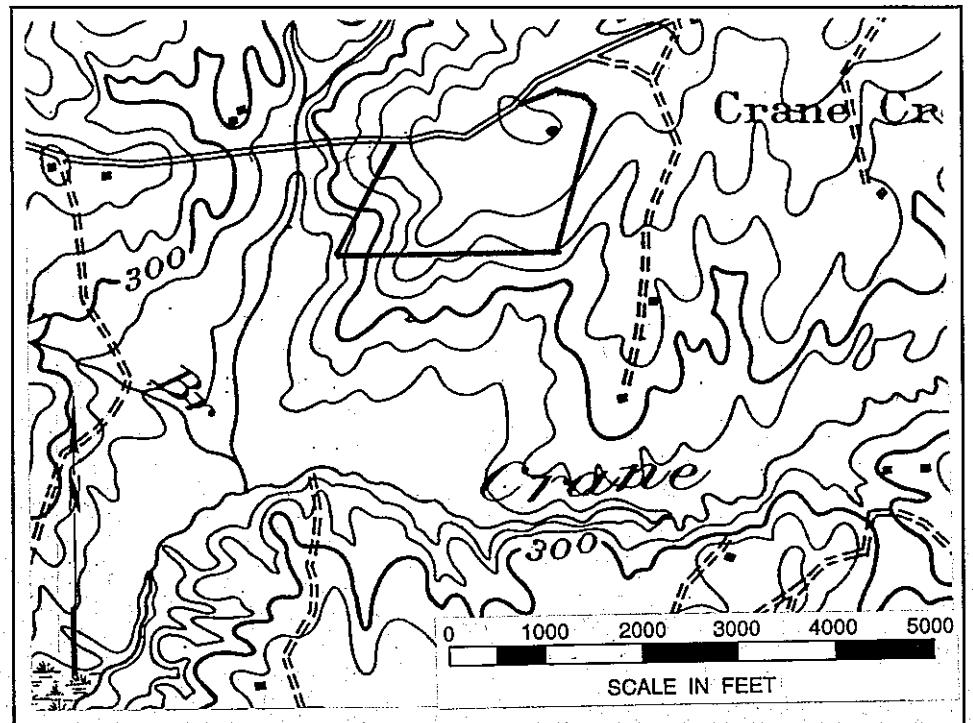

Figure 8. Portion of the 1935 Killian 15' topographic map showing the project area.

50¢) and share cropping were both equally used. Like elsewhere in South Carolina the white owners reported their laborers to be inefficient. In fact, it was suggested that, "the large tracts of land now owned by a few proprietors should be sold to working white men in small areas, instead of being rented to colored tenants, who injure it by bad cultivation" (The News and Courier 1880:n.p.) It was figured that each pound of cotton cost about 8¢ to produce (or about $40 per bale), with 72% of that cost occurring during the raising of the cotton.

By 1907 corn was planted on almost as many acres as cotton (30,399 acres compared to 35,182 acres of cotton). Industry was more common, including brick works, lumber mills, quarries, and, most importantly, cotton mills. In fact, the Olympia Mill was the largest cotton mill under one roof in the world with 10 acres of floor space, 100,000 spindles and 2,250 looms (State Department of Agriculture, Commerce, and Immigration 1907:560).

One of the earliest detailed maps of the region is the 1935 topographic map shown in Figure 8. By this time Killian is a small railroad community. Moore comments that one by-product of the postbellum dissolution of large plantations was "the creation of village life" (Moore 1993:210). There were a number of small rail town which also served as post offices similar to Killian, such as Sharp's, located just north of Killian. Following the pattern established at least by the early nineteenth century most of the settlements were situated along the major road network, not along the creeks and streams which offered limited transportation potential. Only one structure is shown in the project area at the highest ridge adjacent to S-52. By 1939 this structure is now longer shown (Figure 9).

The Great Depression of the 1930s was perhaps a less disruptive in the Columbia area than many other places. Loften (1977) suggests that the diversified industrial base of Columbia, combined with its strong professional orientation helped buffer it from the depression's effects. More to the point, outside the city agriculture was already so depressed that there were no abrupt changes in the farming community — many farm laborers were already out of work or were marginally surviving. The number of farms in Richland County was declining during the first quarter of the twentieth century (from 2,927 in 1900 to 2,748 in 1910). Although a change in the method of calculating farm units increased the number to 3,889 in 1920, the number again steadily declined to 2,787 in 1930 and 2,428 in 1940. Just as the number of farms declined, so too did the acres in farms, from a high of 238,193 in 1900 to 191,430 in 1930. Most telling, however, was the decline in farm values. In 1920 the average farm value for Richland County was $5,575 or about

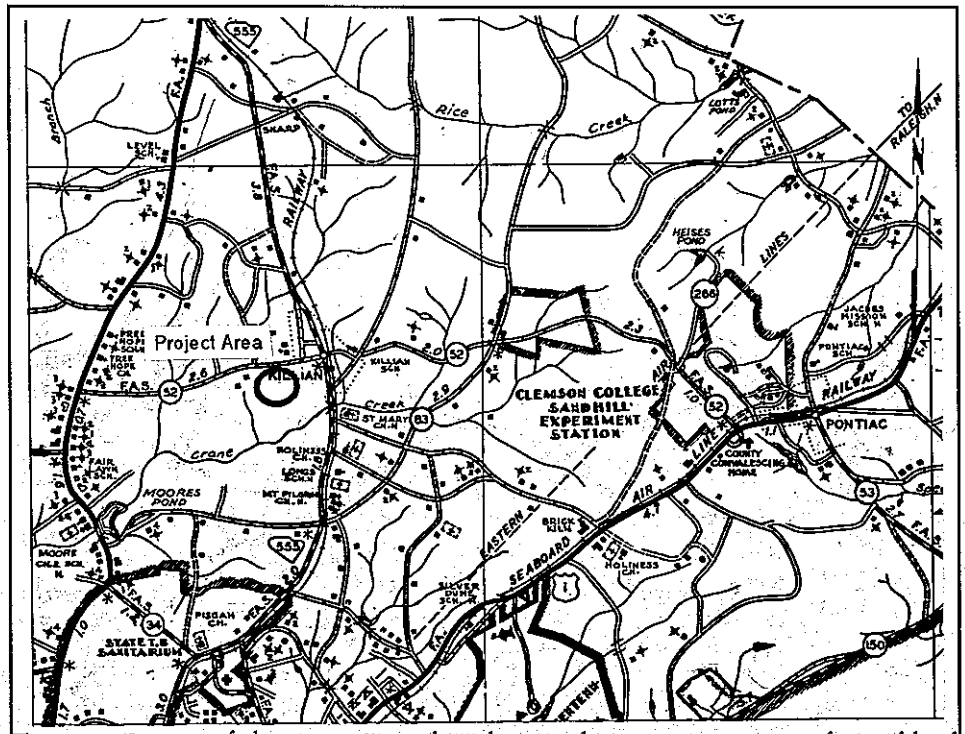

Figure 9. Portion of the 1935 General Highway and Transportation Map for Richland County showing the project area.

$54.11/acre. Within 10 years about half of this average value was lost — in 1930 the average value was calculated at $2,852. While the average value held steady between 1930 and 1940, the value per acre continued to slip — from nearly $42 in 1930 to only about $33 in 1940.

This change gradually continued over the next forty years so that in 1980 there were only 382 farms listed for Richland County, with an associated decline in farm size. Replacing agriculture in Richland County was an increased dependence on industrial and governmental activities. While the county was largely urban even as early as 1920, when 51.3% of the population lived in urban areas, this increased to 61.6% in 1940.

METHODS

Archaeological Field Methods

The initially proposed field techniques involved the placement of shovel tests at 100 foot intervals along transects spaced 100 feet apart. All soil would be screened through ¼ inch mesh, with each test numbered sequentially by transect. Each test would measure about 1 foot square and would normally be taken to a depth of at least 2.5 feet or until clay subsoil was encountered. All cultural remains would be collected, except for mortar, and brick, which would be quantitatively noted in the field and discarded. Notes would be maintained for profiles at any sites encountered.

Should sites (defined by the presence of two or more artifacts from either surface survey or shovel tests within a 25 feet area) be identified, further tests would be used to obtain data on site boundaries, artifact quantity and diversity, site integrity, and temporal affiliation. These tests would be placed at 25 to 50 feet intervals in a simple cruciform pattern until two consecutive negative shovel tests were encountered. The information required for completion of South Carolina Institute of Archaeology and Anthropology site forms would be collected and photographs would be taken, if warranted in the opinion of the field investigators.

A series of 25 transects were established running due south from the northern boundary of the survey parcel (S-55) and numbered from west to east. In order to completely survey the western edge of the tract, a series of short transects were run west off Transect 1 (Figure 10). As a result of this work, a total of 469 shovel tests were excavated during this survey.

The field investigation identified extensive logging impacts to the survey tract. Much of the ridge was covered logging debris such as stumps, logs, and limbs which had been raked into piles (Figure 11). There were also a number of open areas, perhaps old logging decks, where there was evidence of rutting, push piles, and extensive erosion (Figure 12). In these open areas clay was often exposed on the surface and there were numerous gullies, often 0.5 to 1.0 foot in depth. Even in areas where there appeared to good ground cover we found trees "pedestaled" upwards of a foot above the surrounding ground level (Figure 13), indicative of extensive soil loss throughout the tract.

Shovel tests in the survey area revealed the extent of soil loss. We found some areas, such as on Transect 1, on the western slope, where the soil profiles were close to typical for Fuquay soils, revealing 0.6 foot of grayish-brown (2.5YR5/2) sandy Ap horizon soil overlying upwards of 2.5 feet of light yellowish brown (10YR6/4) sand before a clay loam B horizon was encountered. In many places, however, the Ap horizon was reduced to as little as 0.2 foot or was entirely absent, with the A2 horizon of light yellowish brown soil exposed at the surface. As we moved to the center of the ridge we found that the Ap horizon was almost always absent, with the A2 horizon dramatically reduced in depth, often no more than 0.8 foot, overlying the yellowish-brown (10YR5/6) sandy clay loam subsoil. It is likely that this erosion began during early twentieth century cultivation and was exacerbated by logging over the past several decades.

At the southern edge of the survey tract we identified some areas of Herndon soil, consisting of about 0.1 foot of dark grayish brown (10YR4/2) silt loam overlying about 0.4 foot of very pale brown (10YR7/4) loam. Below this was typically a brownish yellow (10YR6/6) silt loam to a depth of about 1.1 foot at which point a strong brown (7.5YR5/8) silty clay was encountered.

At the eastern edge of the survey tract, in the vicinity of the intermittent drainage, we encountered a few areas of Nason soils. In these areas the typical soil profile was about 0.3 foot of grayish brown (10YR5/2) silt loam over a light yellowish brown (10YR6/4) silt loam. Excavations were terminated at a depth ranging

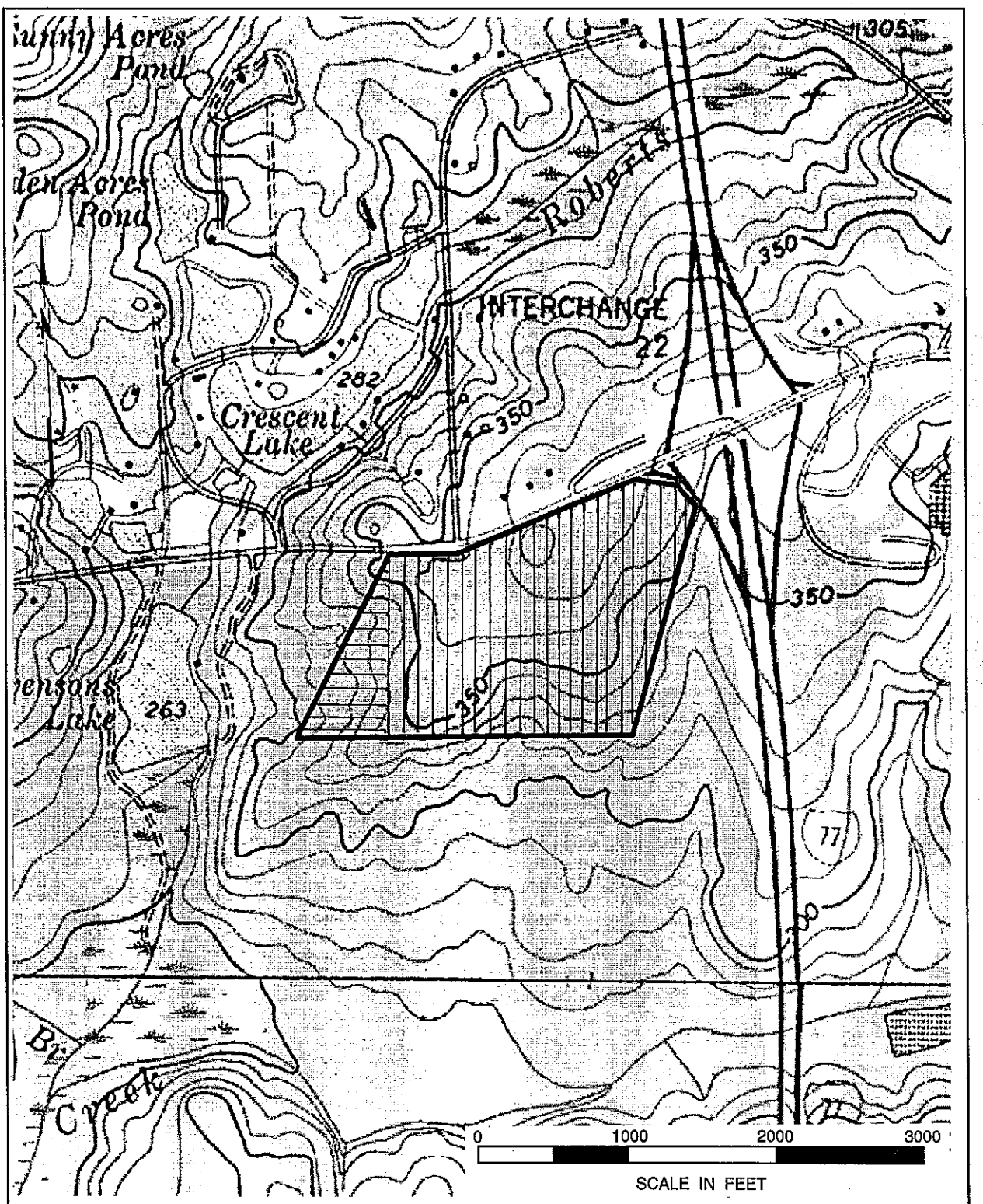

Figure 10. Portion of the Blythewood 7.5' USGS topographic map showing the project area and transects.

Figure 11. Logging debris in the survey area.

from 0.7 and 1.2 feet when a reddish yellow (5YR6/8) silty clay subsoil was encountered.

Site locations were identified using a Global Positioning System for the recordation of the UTMs. The GPS positions were taken with a Garmin GPS 12XL rover and a Garmin GBR 21 Beacon Receiver. The Garmin 12XL tracks up to twelve satellites, each with a separate channel that is continuously being read. The benefit of parallel channel receivers is their improved sensitivity and ability to obtain and hold a satellite lock in difficult situations, such as in forests or urban environments where signal obstruction is a frequent problem. This was a vital consideration for the study area.

GPS accuracy is generally affected by a number of sources of potential error, including errors with satellite clocks, multipathing, and selective availability. Satellite clock errors can occur when the satellite's clock is off by as little as a millisecond, or when a slightly-askew orbit results in a distance error. Multipathing occurs when the signal bounces off trees, chainlink fences, or bodies of water. Multipathing probably occurred occasionally during this survey, but we attempted to reduce the problem by taking readings in areas of minimal vegetation. The source of most extreme GPS errors is selective availability (SA), the deliberate mistiming of satellite signals by the Department of Defense. This

Figure 12. Cleared area showing erosion and push piles.

degradation results in horizontal errors of up to 100 m 95% of the time, although the error may be as much as 300 m. However, SA had been turned off by the DOD and we discovered that 3D[1] and DGPS were identical.

Architectural Survey

At the present time we do not know the type of development which might, ultimately, take place on the survey tract. An existing industrial plant, situated on the east side of I-77 at Killian Road presents a low profile which cannot be seen more than about 0.2 mile away. Nevertheless, we opted to explore an area of potential effect (APE) 1.0 mile in diameter around the survey site, allowing a safety margin for whatever type of facility might elect to locate at this location.

Figure 13. Tree "pedestaled" in survey area, showing extent of sheet erosion.

The architectural survey recorded buildings, sites, structures, and objects which appeared to have been constructed before 1950. Typical of such projects, this survey recorded only those which "have kept their integrity" (Anonymous n.d.:4).

For each identified resource a Statewide Survey Site Form was completed and at least two representative photographs were taken. Permanent control numbers were assigned by the Survey Staff of the S.C. Department of Archives and History at the conclusion of the study. The Site Forms for the resources identified during this study have been submitted to the S.C. Department of Archives and History.

The survey was conducted by driving the public roads (typically county or state secondary roads) in the APE. These roads included S-55 (at the northern boundary of the survey tract), S-1325 to the north, and several county roads. The background research on individual properties was more limited than is the case on county-wide local history surveys. We collected all of the information readily available to us in the field. In other words, where we found residents willing to discuss their property, we took advantage of this to collect additional information. We did not, however, pursue individuals who were not at home, attempt to make contact with others in the area, or aggressively seek out property owners. We did not conduct deed research, nor did we search newspaper archives for property-specific citations.

Site Evaluation

Archaeological sites will be evaluated for further work based on the eligibility criteria for the National Register of Historic Places. Chicora

[1] A basic requirement for GPS position accuracy is having a lock on at least four satellites, which places the receiver in 3D mode. This is critical — as an example, positions calculated with less than four satellites can have horizontal errors in excess of a mile, or over 1,600 m.

Foundation only provides an opinion of National Register eligibility and the final determination is made by the lead federal agency, in consultation with the State Historic Preservation Officer at the South Carolina Department of Archives and History.

The criteria for eligibility to the National Register of Historic Places is described by 36CFR60.4, which states:

> the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and
>
> a. that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> b. that are associated with the lives of persons significant in our past; or
>
> c. that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> d. that have yielded, or may be likely to yield, information important in prehistory or history.

National Register Bulletin 36 (Townsend et al. 1993) provides an evaluative process that contains five steps for forming a clearly defined explicit rationale for either the site's eligibility or lack of eligibility. Briefly, these steps are:

- identification of the site's data sets or categories of archaeological information such as ceramics, lithics, subsistence remains, architectural remains, or sub-surface features;
- identification of the historic context applicable to the site, providing a framework for the evaluative process;
- identification of the important research questions the site might be able to address, given the data sets and the context;
- evaluation of the site's archaeological integrity to ensure that the data sets were sufficiently well preserved to address the research questions; and
- identification of important research questions among all of those which might be asked and answered at the site.

This approach, of course, has been developed for use documenting eligibility of sites being actually nominated to the National Register of Historic Places where the evaluative process must stand alone, with relatively little reference to other documentation and where typically only one site is being considered. As a result, some aspects of the evaluative process have been summarized, but we have tried to focus on each archaeological site's ability to address significant research topics within the context of its available data sets.

For architectural sites the evaluative process was somewhat different. Given the relatively limited architectural data available for most of the properties, we have focused on evaluating these sites using National Register Criterion C, focusing on the site's "distinctive characteristics." Key to this concept is the issue of integrity. This means that the property needs to have retained, essentially intact, its physical identity from the

historic period.

Particular attention would be given to the integrity of design, workmanship, and materials. Design includes the organization of space, proportion, scale, technology, ornamentation, and materials. As *National Register Bulletin* 36 observes, "Recognizability of a property, or the ability of a property to convey its significance, depends largely upon the degree to which the design of the property is intact" (Townsend et al. 1993:18). Workmanship is evidence of the artisan's labor and skill and can apply to either the entire property or to specific features of the property. Finally, materials — the physical items used on and in the property — are "of paramount importance under Criterion C" (Townsend et al. 1993:19). Integrity here is reflected by maintenance of the original material and avoidance of replacement materials.

Laboratory Analysis

The cleaning and analysis of artifacts was conducted in Columbia at the Chicora Foundation laboratories. These materials have been catalogued and accessioned for curation at the South Carolina Institute of Archaeology and Anthropology, the closest regional repository. The site forms for the identified archaeological sites have been filed with the South Carolina Institute of Archaeology and Anthropology. Field notes and photographic materials have been prepared for curation using archival standards and will be transferred to that agency as soon as the project is complete.

The primary raw material identified in the lithic collections was quartz, which was usually a translucent white, but occasionally yellowish-brown, or nearly clear (quartz crystal). This material is found throughout the Carolina Piedmont and might have been obtained from either veins or as cobbles in Piedmont river gravels.

Most of the remaining material may be classified as metavolcanic, meaning partially metamorphosed volcanic rocks. This might include flow banded rhyolite, porphyritic rhyolite, plain rhyolite, felsic tuff, welded vitric tuff or breccia tuff. These are, like the quartz, materials which are fairly common in the Piedmont and considered local.

Another material was chert, which represents a extralocal raw material, likely coming from the Coastal Plain.

Debitage categories might include primary (defined as flakes with 90% or more cortex), secondary (defined as having less than 90% cortex), or interior (defined as having no cortex). These categories, widely used, are briefly explained by Yohe (1996:54-56; for further information see Blanton et al. 1986 or Oliver et al. 1986).

Shatter is often called chunks by other researchers. Either term is typically applied to angular pieces of debitage of various sizes. They lack observable striking platforms, dorsal and ventral faces, or other characteristics of flakes. These items are often, although not always blocky and angular. Shatter is thought to have been produced in greatest numbers in the very earliest stages of tool production.

Points, also called hafted bifaces by some, are symmetrical, pointed bifaces which are modified for hafting. The diagnostic lithic remains were compared to published typological descriptions for the various projectile points such as Coe (1952, 1964), Oliver (1981), and South (1959). Items which can not be securely identified because of damage or which lack the often definitive basal sections are classified simply as bifaces.

At this survey level tools are defined very simply, being placed in broad morphological categories. Our laboratory methods, for example, define a biface as an artifact with flakes removed on both sides (not distinguishing between preforms, early stage reductions, and so forth); a core is a piece of raw material from which flakes have been removed; an end scraper is a blade tool with at least one convex end which exhibits a steep angle; a used flake is a chip of stone that was used as a tool, exhibiting edge damage or wear; and a side scraper is a flake tool in which one of the long edges was retouched to serve as the scraping edge. These definitions generally follow those provided by Yohe (1996).

RESULTS OF SURVEY

Introduction

The cultural resources identified during the intensive survey of the 100 acre portion of the Kaiser tract include three archaeological sites, as well as a fourth site immediately outside the survey boundaries (Figure 14).

All four of these resources are recommended as ineligible for the National Register. In each case the resources are heavily disturbed by logging with evidence of extensive erosion, rutting, and/or bulldozing of push piles. At all but one site shovel testing failed to identify any materials which weren't on the surface. These sites are judged to be far too disturbed to enable them to address significant research questions.

Also identified are three historic resources, including two structures and a cemetery. The two structures are recommended not eligible based on extensive alterations resulting in a loss of integrity. The third resource is a historic cemetery, which is recommended potentially eligible. It requires additional historic research in order to make a determination. Nevertheless, none of these sites is likely to be affected by the proposed undertaking, given their distance from the survey tract.

Table 1.
Cultural Resources Identified in the Survey Tract and APE

Archaeological Sites

Site	Component	Size	Artifact #	Eligibility
38RD1169	lithic scatter	20,000 ft²	30	NE
38RD1170	prehistoric/historic	600 ft²	9	NE
38RD1171	lithic scatter	600 ft²	10	NE
38RD1172	prehistoric/historic	5,400 ft²	10	NE

Historic Resources

Resource	Name	Construct. Date	Eligibility
0474731		ca. 1930	NE
0474732		ca. 1930	NE
0474733	Killian Baptist Cemetery	ca. 1870	PE

NE=not eligible; PE = potentially eligible

Site 38RD1169

Site 38RD1169 is a prehistoric lithic scatter measuring 200 feet north-south by 100 feet east-west, yielding an occupation area of about 20,000 feet² (Figure 15). The site is located around a north-south logging road about 1,000 feet south of S-52 in the center of the survey area. The central UTM coordinates are N3776450 E502698 (NAD27 datum) and the elevation is about 350 feet above mean sea level (AMSL) on a west facing ridge nose or side slope.

The site was initially identified by surface finds walking the logging road. They appeared to be associated with a large opening or clearing, which perhaps functioned as a logging deck. This area was largely devoid of vegetation and clay subsoil was widely exposed. Push piles of logging debris and soils were observed at the eastern edge of the site and off the site to the south. Shovel testing on adjacent transects 3 and 4 failed to identify any subsurface remains.

A series of 12 additional shovel tests were excavated in a cruciform pattern at 25-foot intervals across the site in an effort to

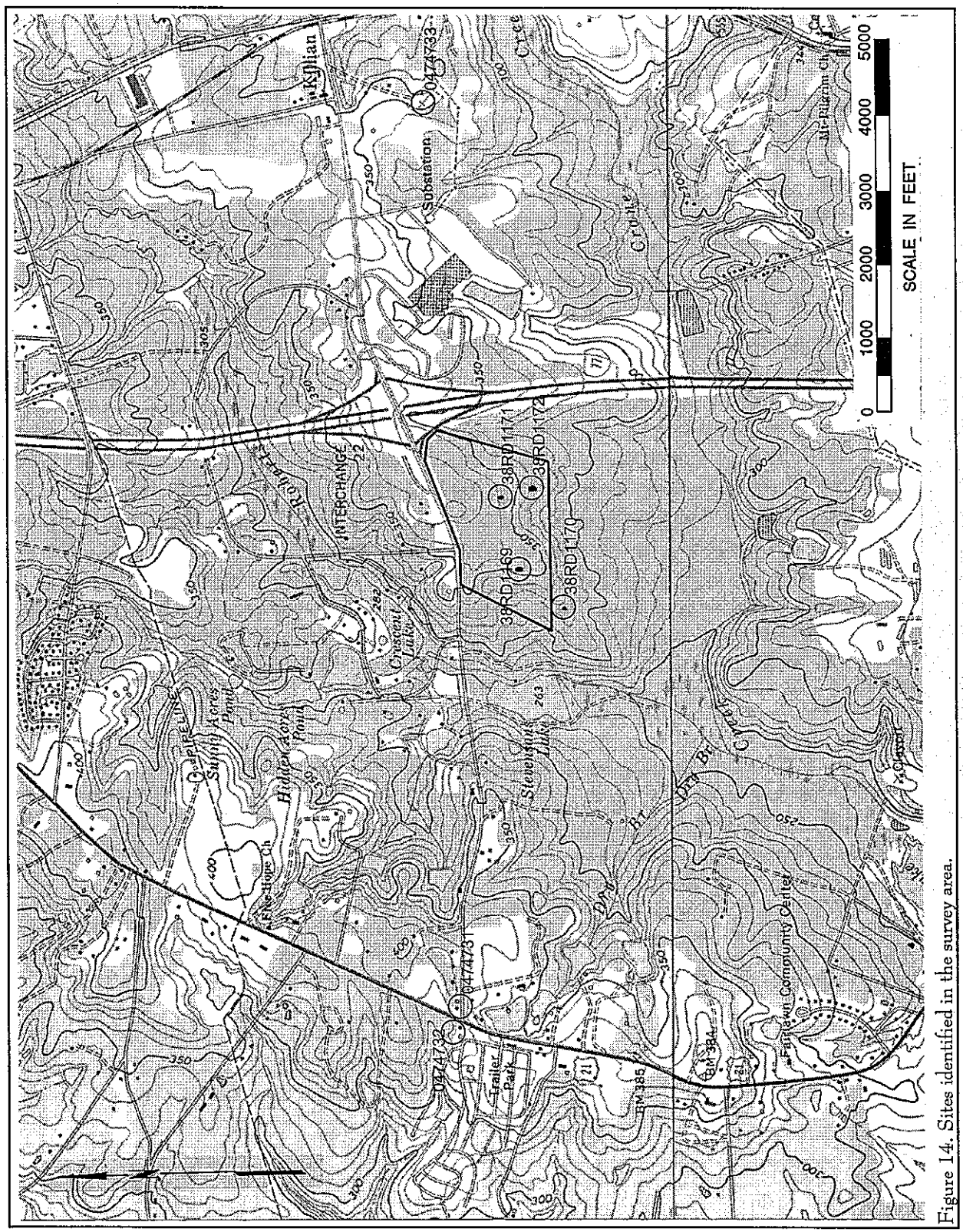

Figure 14. Sites identified in the survey area.

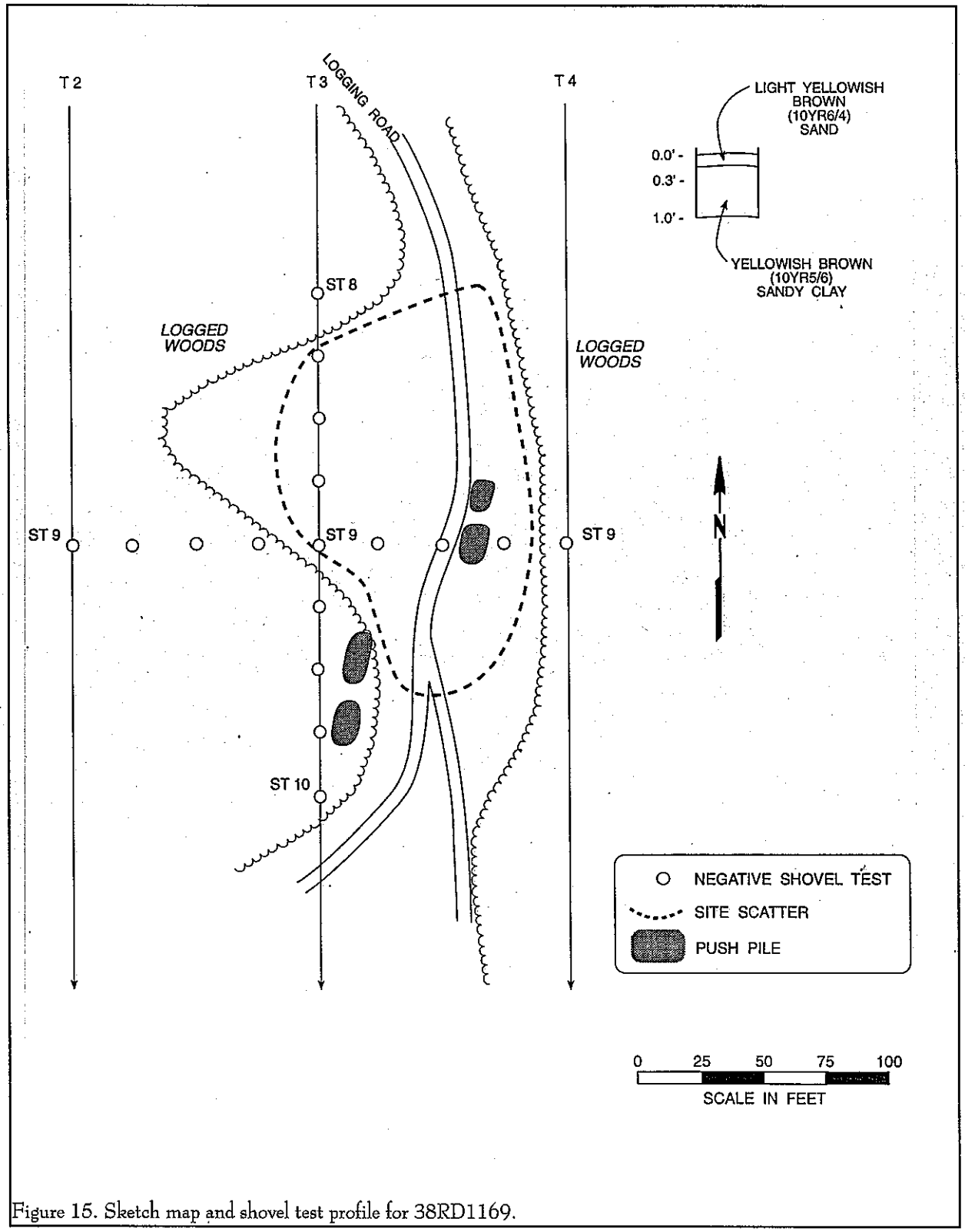

Figure 15. Sketch map and shovel test profile for 38RD1169.

recover artifacts from intact site areas. Shovel Test 9 on Transect 3 was selected as the location from which to conduct this additional testing. The tests to the north and east crossed the open area in which surface materials were first found. These tests revealed a yellowish brown (10YR5/6) sandy clay exposed at the surface and excavations were carried only about 0.2 foot into this firm clay subsoil. While sheet erosion was not clearly observed, there were also a few gullies, with loss of soil to depths ranging from 0.3 to 0.6 foot. The tests to the west and south extended into logged forest and we hoped that some remnant site might be found in these less disturbed areas. We found the soil profiles to consist of about 0.3 foot of light yellowish brown (10YR6/4) sand overlying the same yellowish brown sandy clay or loamy clay observed elsewhere on the site. These profiles are consistent with Fuquay soils and they reveal that the A or Ap horizon has been largely removed from the site and we were observing only the base of the remnant A horizon before encountering subsoil. No materials were recovered from any of the shovel tests.

The artifacts recovered from the surface as a result of an complete grab collection include 27 interior quartz flakes and three biface fragments. None of biface fragments are diagnostic, although an earlier survey of this general area by Heritage Trust archaeologists (Judge and Rood 1999) recovered a Morrow Mountain projectile point, indicating a Middle Archaic time-period (ca 5,000 B.C.). Whether the remains from 38RD1169 can be identified with this Morrow Mountain occupation is uncertain, although Middle Archaic peoples did frequently use quartz as their primary raw material.

This site exhibits extensive erosion which likely began during decades of cultivation and culminated in the most recent logging operations. Much of the site core exhibits no intact A horizon and the clay subsoil is exposed. Shovel testing failed to identify any in situ materials — everything from the site has been recovered in a disturbed surface context. As a result, the site exhibits virtually no integrity. Moreover, the data sets present at the site are very limited — comprising only flakes and bifacally flaked tool fragments. As a result, it is unlikely that this site can address any significant research questions appropriate for Middle Archaic sites in the Carolina Sand Hills/Piedmont interface. No additional management activities are recommended pending the review and concurrence of the State Historic Preservation Office.

38RD1170

This site was encountered while walking a logging road in an effort to determine the western boundary of the survey tract. The site is situated just outside the survey tract, about 1,500 feet south of S-52. The central UTM coordinates areN3776264 E502539 (NAD27 datum) and the site is found on a southwest facing ridge nose at an elevation of 325 feet AMSL. Surface materials were recovered from an area measuring about 40 feet southwest-northeast by 15 feet northwest-southeast or about 600 feet^2.

Prehistoric materials recovered from the surface include six interior quartz flakes, one rhyolite interior flake, and the basal portion of a quartz Palmer Corner Notched (Coe 1964:67), characterized by a ground base. Also present in the collection is one fragment of aqua bottle glass. The Palmer point from this site indicates an Early Archaic occupation of about 8,000 B.C., while the bottle fragment likely dates from the first half of the twentieth century.

The area exhibits extensive erosion, with gullies in the road bed of up to 1 foot in depth — likely promoted by the sloping topography. A series of nine shovel tests were excavated at 25 foot intervals in a cruciform pattern bisecting the surface scatter. These shovel tests revealed either yellowish brown sandy clay at the surface or, in the woods out of the road area, a profile of about 0.5 foot of light yellowish brown (10YR6/4) sand overlying the subsoil. Nevertheless, none of the shovel tests produced any cultural remains.

The prehistoric data sets at this site are limited to flakes and a single tool, with no materials coming from intact soil deposits. There is only one historic data set — the single glass container fragment — and it, too, was recovered from the surface. The scarcity of remains, coupled with the lack of integrity, suggest that this site cannot address significant research questions appropriate for either Early Archaic or Early Twentieth Century sites. As a result, it is recommended not

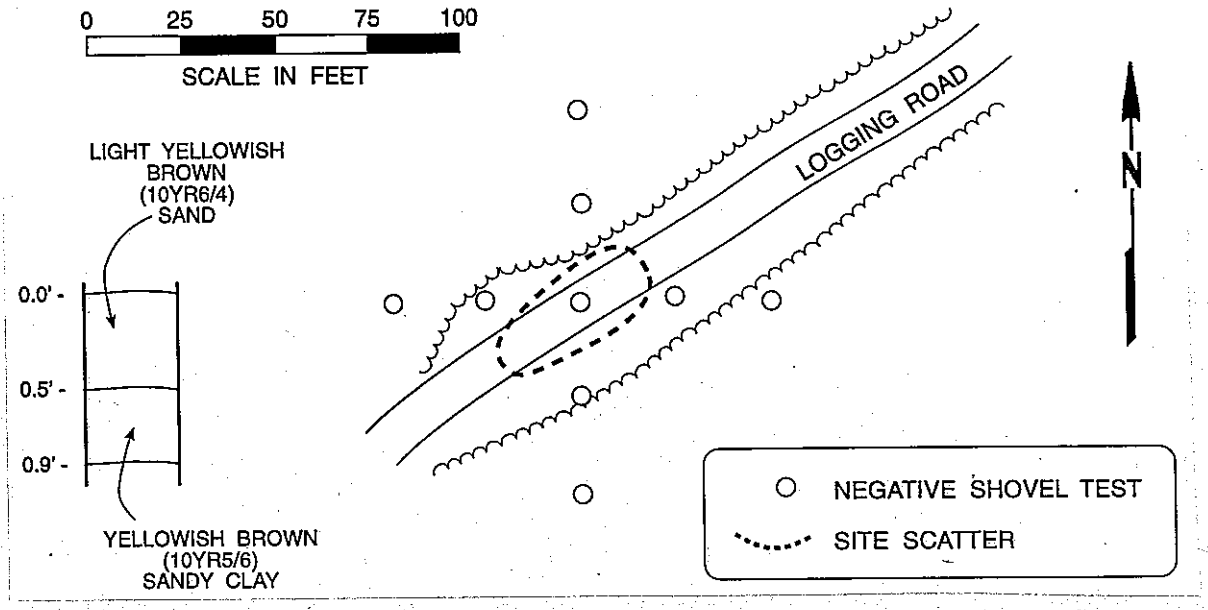

Figure 16. Sketch map of 38RD 1170.

eligible for inclusion on the National Register and no additional management activities are recommended, pending the review and concurrence of the State Historic Preservation Office.

38RD1171

This site is also situated in a logging road in the south central portion of the survey tract, about 800 feet south of S-52. The site is found on a south facing ridge slope at an elevation of about 355 feet. The central UTM coordinates are N3776525 E503001 (NAD27 datum). The site was first encountered as surface material as we were walking the logging road, returning from the completion of Transect 12. Materials were limited to the road area itself, encompassing an area of 40 feet north-south by 15 feet east-west. The area is logged pine with an understory of scrub hardwoods beginning to grow up. Like other areas on the survey tract where there is little or no ground cover, there was extensive erosion in the road and a clay subsoil was exposed.

The surface materials collected include seven interior quartz flakes, one rhyolite interior flake, one quartz biface fragment, and one Coastal Plain chert end scraper. This last artifact is consistent with the Type I specimens identified by Coe (1964:75) from the Hardaway site in North Carolina. These are frequently associated with Palmer occupations and an Early Archaic context is not unreasonable. Unfortunately, none of the other material at this site is temporally diagnostic.

In an effort to recover in situ material a series of 12 additional shovel tests were excavated at 25 foot intervals in the clearing on both sides of the road and the adjacent forested area. We hoped that materials might be encountered in less disturbed contexts around the surface finds. All of the shovel tests, however, were negative. Like elsewhere on the study tract, the shovel tests in the road or immediate road area revealed a loss of all A horizon soil. As we moved further into the wooded area on either side of the road the profiles began to reveal at least remnants of the original A2 horizon,

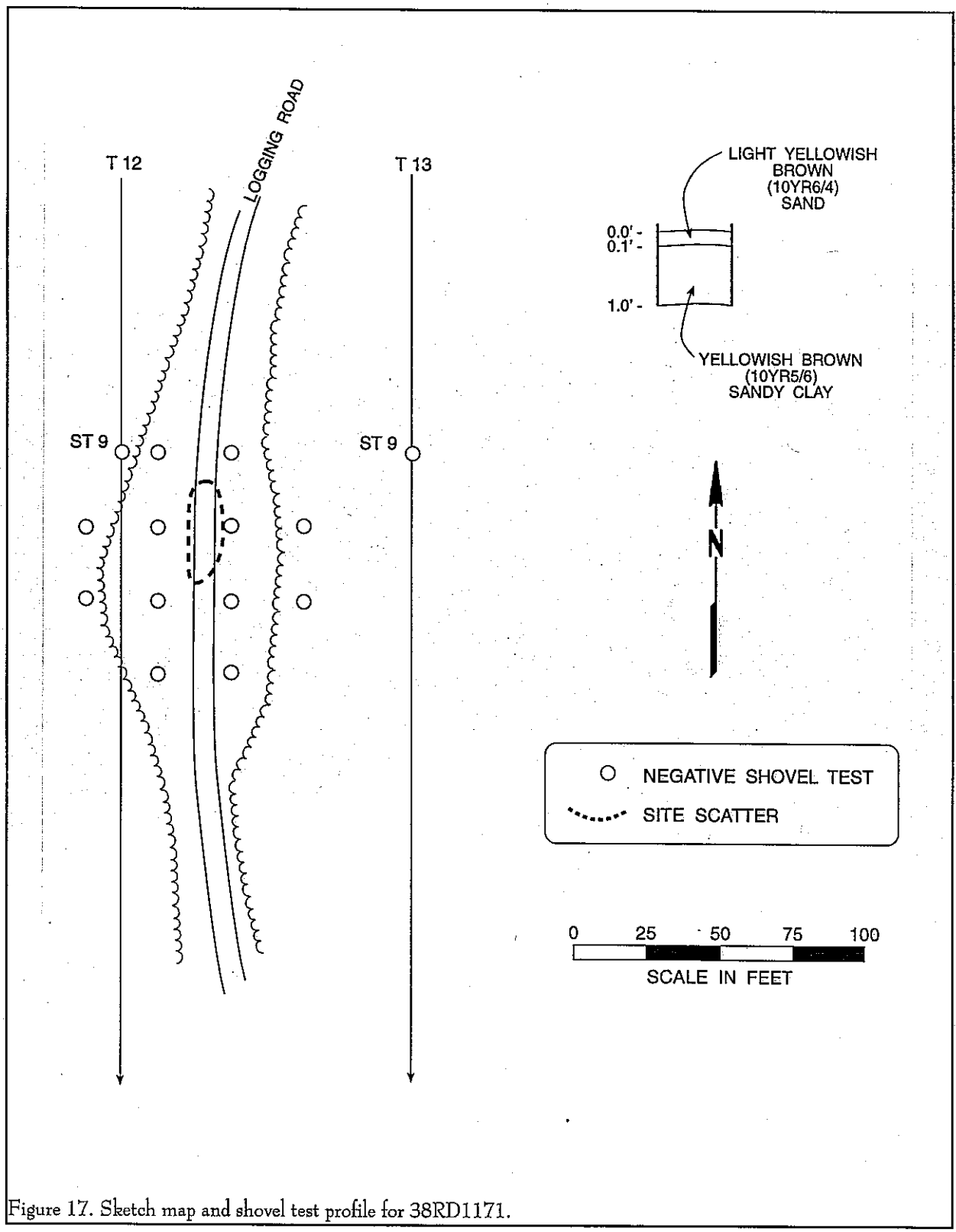

Figure 17. Sketch map and shovel test profile for 38RD1171.

yielding about 0.1 to 0.4 foot of light yellowish brown (10YR6/4) sand over a yellowish brown sandy clay subsoil. Excavation into the subsoil revealed that this clay become more firm with depth.

In spite of the early tool from this site, the range of data sets is still very limited and the integrity of the remains is poor. It appears that the site has been entirely redeposited on the surface as a result of either cultivation or logging. The site is recommended not eligible for inclusion on the National Register and no additional management activities are recommended, pending the review and concurrence of the State Historic Preservation Office.

38RD1172

Site 38RD1172 is situated about 300 feet south of 38RD1171 on the same logging road. It is about 1,200 feet south of S-52 on the southern edge of the survey tract and is situated on a south facing side slope at an elevation of 340 feet AMSL. The central UTM coordinates are N3776394 E503039 (NAD27 datum).

The site was initially encountered in Shovel Test 11 on Transect 12 as a single quartz interior flake, but was not identified in any of the parallel shovel tests on Transect 13, 100 feet to the west. A series of 10 additional shovel tests were excavated off the positive shovel test at 25 foot intervals. None of these yielded any additional remains.

Similar to site 38RD1169, there is an open area around the logging road in this area. The logging debris, lack of vegetation, and general topography suggest that this area may have served as a logging deck. As a result, an examination of the surface in the general area was also conducted. It revealed a light scatter of lithics, including two quartz interior flakes, four rhyolite interior flakes, one quart biface fragment, and a manganese panel bottle fragment. The prehistoric remains are not diagnostic, although the one historic artifacts is suggestive of the first half of the twentieth century.

In an effort to determine if the site extended beyond the surface scatter, a series of nine additional shovel tests at 25 foot intervals were excavated off tests on Transect 13 to the east. One shovel test, 50 feet south of Shovel Test 10, did yield a single quartz interior flake, although none of the additional tests produced either prehistoric or historic remains.

The site dimensions, including both the surface scatter and the two positive shovel tests, are about 90 feet north-south by 60 feet east-west.

In the less disturbed areas we found soil profiles consisting of a yellow brown (10YR6/6) silt loam up to 0.5 foot in depth overlying a brown (7.5YR5/8) silty clay subsoil. The disturbed areas revealed multi-colored clays on the surface. This profile is suggestive of the Herndon silt loams reported for this area, although in the site area we are finding only the basal portions of the normal profile — the upper levels have been eroded away.

The data sets from this site are interesting in that they reveal the greatest proportion of rhyolite to quartz flakes. Nevertheless, the range of data sets is still sparse. In addition, while we did identify two shovel tests with artifacts (in each case recovered from the upper 0.3 foot of the soil profile), these represent less than 10% of the shovel tests excavated in the area. We do not believe that the site exhibits either the diversity of data sets or adequate site integrity to allow significant research questions to be addressed. As a result, we recommend the site not eligible for inclusion on the National Register of Historic Places. No additional management activities are recommended at this site, pending the review and concurrence of the State Historic Preservation Office.

Historic Resources

Two structures 50 years or more old were identified at the edge of the 1.0 mile APE. **Structure 0474731** is located at the junction of Killian Road (S-52) and Wilson Road (U.S. 21). This is a one-story cross gable frame house with a one-story porch on the front and right facades supported by brick piers. The single windows exhibit Craftsman pane configurations and the front gable window has a 4/1 configuration. The decorative braces under the gables also give a Craftsman "feel" to the structure. To the rear of the

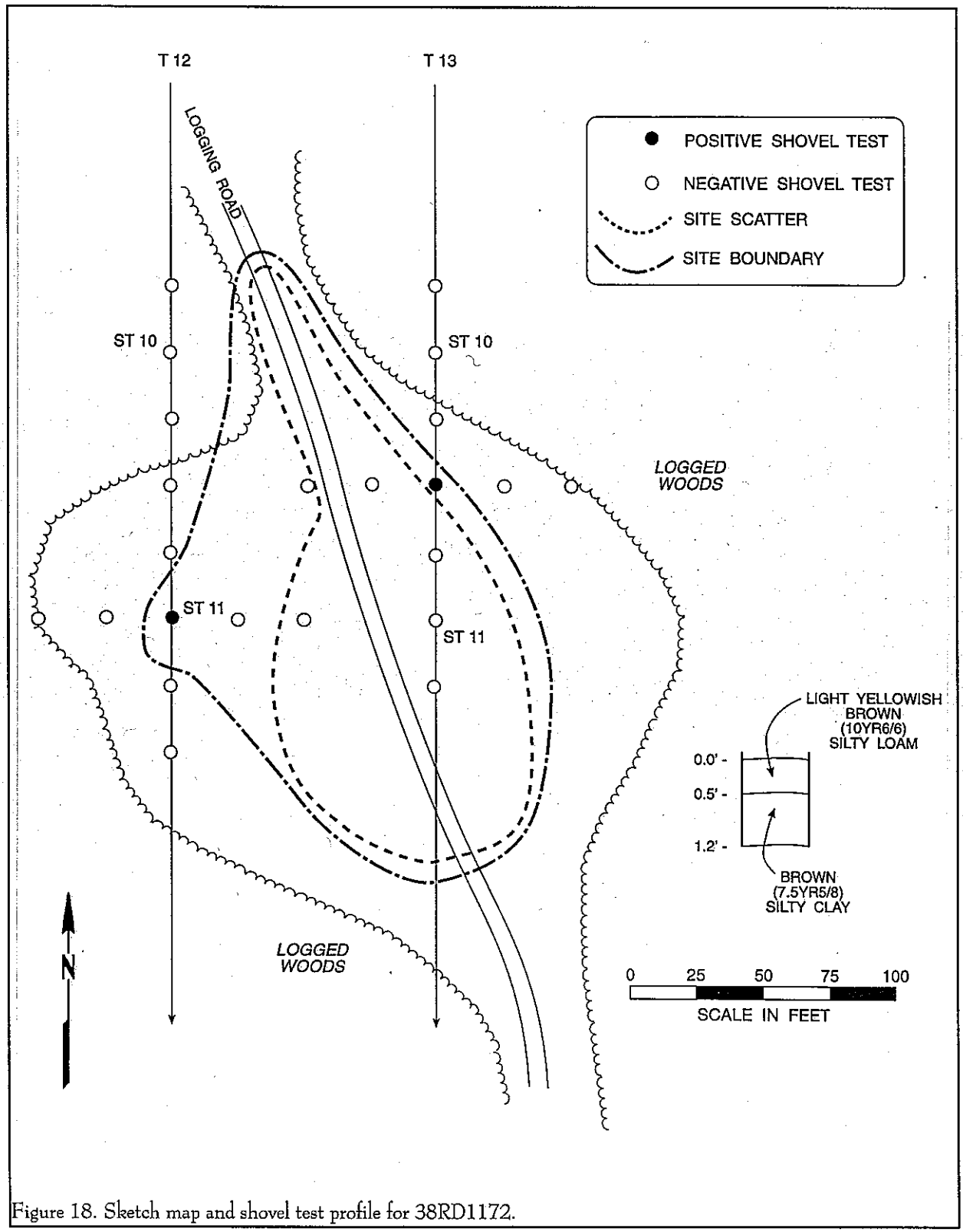

Figure 18. Sketch map and shovel test profile for 38RD1172.

Figure 19. Structure 0474731, west (front) and south facades looking northeast.

house is a historic garage and more recent pump house. Alterations to the ca. 1930 structure include storm windows and an extensive rear wing, added about 1965.

Structure 0474732 is situated at 9499 Wilson Road (U.S. 21), just west of the junction of Killian Road (S-52) and Wilson Road. It is a one-story frame house with lateral gable roof built about 1930. It has a one-story porch on the front and left facade. Original weatherboard has been covered with synthetic siding. The grouped windows exhibit Craftsman pane configurations, although other potential Craftsman style features have been covered by the siding. Other alterations include storm windows and doors, the replacement of the gable window with a modern sash, and the addition of decorative plastic shutters, with much of this work dating to about 1975. The only historic outbuilding is a wood frame garage to the rear.

The final historic resource is the Killian Baptist Cemetery (**04744733**), which covers about an acre at the end of Killian Baptist Cemetery Road, off Killian Road (S-52) southwest of its junction with SC 555. There are about 300 marked graves dating from the last quarter of the nineteenth century through 1999. The marked graves include a mix of "modern" granite dies on bases, as well as a large number of marble tabletstones. There are also a number of fieldstones in the cemetery, suggesting that its origin may predate

Figure 20. Structure 0474732, east (front) and south facades looking northwest.

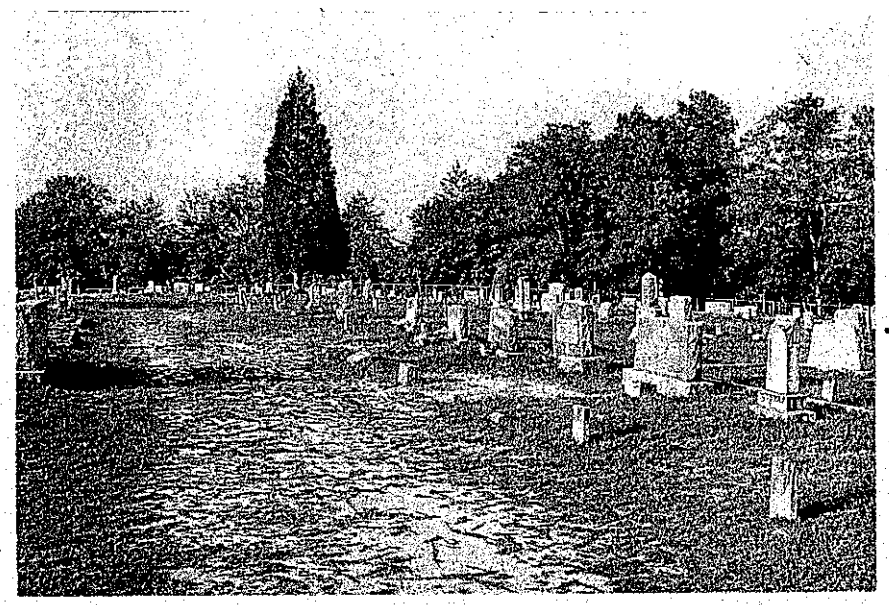

Figure 21. General view of site 0474733, Killian Baptist Cemetery, looking south.

1870. Also present are a number of unusual unglazed red tiles used as markers. There is one wood marker still extant, several concrete markers with evidence of whitewashing, as well as a number of unique specimens, such as an iron scrollwork marker. In addition to individual graves, there are family plots exhibiting coping. Individual graves are occasionally delimited by brick or other edging, while a number of family plots contain white gravel. It is likely that there are also a large number of unmarked graves, based on the rolling topography and sunken areas. The cemetery is well maintained and surrounded by a modern chain link fence. The 1935 Killian topographic map reveals the existence of the Crane Creek Church immediately west of this cemetery, although it is no longer extant.

The two standing structures, 0474731 and 0474732, are both recommended not eligible based on their alterations and lack of integrity. The cemetery, 0474733, is recommended potentially eligible (pending additional historic research) under Criterion C, because of its distinctive physical characteristics of design representative of rural Southern church cemeteries.

We do not, however, believe that any of these sites will be affected by development of the Kaiser tract. In the case of the two standing structures, they are situated so far to the west, at the very edge of the 1.0 mile APE that development will likely not be noticeable. In addition, their current setting is already compromised by mixed commercial development and the presence of a trailer park to the southwest. The cemetery is likewise at the edge of the 1.0 mile APE and another industrial development is situated between the cemetery and the Kaiser tract.

CONCLUSIONS

This study involved the examination of a 100 acre tract situated west of I-77 and south of S-52 in the vicinity of Killian in northern Richland County, South Carolina. The tract, situated on a high ridge overlooking Roberts Creek to the west and Crane Creek to the south, is situated in an area consisting of mixed residential neighborhoods and industrial development. While the entire Kaiser site includes much bottomland and steeply sloping topography, only the relatively level ridge top, most suitable for development activities, is included in this study. This research, conducted for the Central Carolina Economic Development Alliance, provides results of the cultural resources investigation and is intended to assist that organization comply with their historic preservation responsibilities.

Historic research reveals that this portion of Richland County was sparsely settled in the eighteenth century and that by the nineteenth century it was likely part of a plantation focusing on cotton monoculture. It is likely during this period that soils in the study tract began experiencing significant erosion. Twentieth century maps reveal only one potential historic site on the survey tract. This site, present in 1935, was gone by 1939. Although occasional historic artifacts were found on the tract, no archaeological evidence of this posited structure was encountered during the field investigations.

The area has been extensively logged about two years ago and today the upland area is vegetated in scrub hardwoods. Still in evidence are piles of logging debris, push piles, and considerable downed timber. On the slopes there is still a mixed pine and hardwood mesic forest, although logging was conducted in some areas even on the slopes. A series of logging roads is found in the study tract and there is abundant evidence of accelerated erosion from the logging activity.

An initial reconnaissance level investigation by Heritage Trust archaeologists identified "stone artifacts" with at least one diagnostic item from the Middle Archaic (Judge and Rood 1999). The site identified during that survey actually represents an amalgamation of several discrete site loci identified during the current study.

A series of 39 transects spaced at 100 foot intervals were used to examine the study tract, with shovel tests being excavated at 100 foot intervals. A total of 469 shovel tests were excavated (not including additional shovel tests to examine specific site areas). The shovel tests revealed generally deflated soils and extensive erosion. In fact, of the four archaeological sites identified on the tract, only one was found through shovel testing (and even at that site surface materials were far more prominent).

The four archaeological sites identified (38RD1169-1172) all represent primarily lithic scatters. Quartz interior flakes are the most common artifact present, although rhyolite was also recovered. Tools are sparse, but include a basal fragment of a quartz Palmer and a chert end scraper. Bifaces other than the Palmer fragment are all nondiagnostic. The remains from this study (combined with those reported from the Heritage Trust reconnaissance) likely date from the Early to Middle Archaic. Historic materials include only two glass fragments, both representative the of early to mid-twentieth century.

None of the identified archaeological sites contain the data sets, or exhibit the integrity, necessary to allow it to address significant research questions. As a result, all are recommended not eligible.

In spite of this recommendation, the study does provide additional information concerning the nature of archaeological sites in this part of Richland County. All of the identified sites were on the edge of the ridge and not on its crest. It seems likely that these locations allow game to be more easily spotted. In addition, all of the sites exhibit the working of material which appears to have been quarried elsewhere. Quartz

is the most common raw material, although both rhyolite and chert are also present (the latter represented by a single artifact).

The failure to identify historic remains on the tract is likely a result of its historic use as a cultivated field. The one site identified on a historic map was removed by 1939 and no evidence of the structure during the field investigation. It is likely that this was an ephemeral site and that its archaeological footprint has been eliminated by subsequent cultivation and logging.

A survey of historic sites was conducted within a 1.0 mile APE. Identified were two structures (0474731 and 0474732) at the western edge of the APE and a cemetery (0474733) at the eastern edge of the APE. The two structures, constructed about 1930, are shown on available maps, but have been heavily altered. Neither is recommended eligible. The cemetery, in contrast, is recommended potentially eligible under Criterion C, pending collection of additional historic research beyond the scope of the current study. It appears that the cemetery may be a good example of rural Southern church cemeteries, providing examples of a range of common artistic motifs. Regardless, it is unlikely that any of these historic resources will be affected by any foreseeable development on the Kaiser tract, given their distance from the tract.

It is possible that archaeological remains may be encountered in the corridor during construction activities. As always, the utility's contractors should be advised to report any discoveries of concentrations of artifacts (such as bottles, ceramics, or projectile points) or brick rubble to the project engineer, who should in turn report the material to the State Historic Preservation Office, or Chicora Foundation (the process of dealing with late discoveries is discussed in 36CFR800.13(b)(3)). No further land altering activities should take place in the vicinity of these discoveries until they have been examined by an archaeologist and, if necessary, have been processed according to 36CFR800.13(b)(3).

SOURCES CITED

Abbott, Lawrence E., Jr., John S. Cable, Mary Beth Reed, and Erica E. Sanborn

1995 *An Archaeological Survey and Testing of the McLean-Thompson Property Land Acquisition, and the Ambulatory Health Care Clinic Project, Fort Bragg, Cumberland County, North Carolina*. Technical Report 349. New South Associates, Stone Mountain, Georgia.

Adams, Natalie and Michael Trinkley

1992 *Archaeological Reconnaissance and Survey of the Granby River Front Tract, Richland County, South Carolina*. Research Contribution 86. Chicora Foundation, Inc., Columbia.

Anderson, David G.

1979 *Excavations at Four Fall Line Sites: The Southeastern Beltway Project.* Commonwealth Associates, Inc., Jacksonville, Michigan. Submitted to the South Carolina Department of Highways and Public Transportation, Columbia.

1992a A History of Paleoindian and Early Archaic Research in the South Carolina Area. In *Paleoindian and Early Archaic Period Research in the Lower Southeast: A South Carolina Perspective*, edited by David G. Anderson, Kenneth E. Sassaman, and Christopher Judge, pp. 7-18. Council of South Carolina Professional Archaeologists, Columbia.

1992b Models of Paleoindian and Early Archaic Settlement in the Lower Southeast. In *Paleoindian and Early Archaic Period Research in the Lower Southeast: A South Carolina Perspective*, edited by David G. Anderson, Kenneth E. Sassaman, and Christopher Judge, pp. 28-47. Council of South Carolina Professional Archaeologists, Columbia.

Anderson, David G. and Lisa O'Steen

1992 Late Pleistocene/Early Holocene Environmental Conditions in the South Carolina Area. In *Paleoindian and Early Archaic Period Research in the Lower Southeast: A South Carolina Perspective*, edited by David G. Anderson, Kenneth E. Sassaman, and Christopher Judge, pp. 3-6. Council of South Carolina Professional Archaeologists, Columbia.

Anderson, David G., Charles E. Cantley, and A. Lee Novick

1982 *The Mattassee Lake Sites: Archaeological Investigations Along the Lower Santee River in the Coastal Plain of South Carolina*. Report Number 2311. Commonwealth Associates, Inc., Jackson, Michigan.

Anderson, David G., Kenneth E. Sassaman, and Christopher Judge

1992 *Paleoindian and Early Archaic Period Research in the Lower Southeast: A South Carolina Perspective*. Council of South Carolina Professional Archaeologists, Columbia.

Anonymous

n.d. *South Carolina Statewide Survey of*

Historic Places Survey Manual. S.C. Department of Archives and History, Columbia.

Bense, Judith A.
1994 *Archaeology of the Southeastern United States: Paleoindian to World War I*. Academic Press, New York.

Berry, John M.
1980 *Natural Vegetation of South Carolina*. University of South Carolina Press, Columbia.

Blanton, Dennis B., Christopher T. Espenshade, and Paul E. Brockington, Jr.
1986 *An Archaeological Study of 38SU83: A Yadkin Phase Site in the Upper Coastal Plain of South Carolina*. Garrow and Associates, Inc., Atlanta.

Braun, Lucy
1950 *Deciduous Forests of Eastern North America*. Hafner Publishing, New York.

Cable, John S.
1982 Differences in Lithic Assemblages of Forager and Collector Strategies. In *Archaeological Survey and Reconnaissance Within the Ten-Year Floodpool Harry S. Truman Dam and Reservoir*, edited by Richard Taylor. Report submitted to the U.S. Army Corps of Engineers, Kansas City District.

Chapman, Jefferson
1977 *Archaic Period Research in the Lower Little Tennessee River Valley, 1975: Icehouse Bottom, Harrison Branch, Thirty Acre Island, Calloway Island*. Report of Investigations 18. University of Tennessee, Knoxville.

1985a Archaeology and the Archaic Period in the Southern Ridge-an-Valley Province. In *Structure and Process in Southeastern Archaeology*, edited by Roy S. Dickens and H. Trawick Ward, pp. 137-179. The University of Alabama Press, University.

1985b *Tellico Archaeology: 12,000 Years of Native American History*. Reports of Investigations 43, Occasional Paper 5, University of Tennessee, Knoxville.

Charles, Tommy and James L. Michie
1992 South Carolina Paleo Point Data. In *Paleoindian and Early Archaic Period Research in the Lower Southeast: A South Carolina Perspective*, edited by David G. Anderson, Kenneth E. Sassaman, and Christopher Judge, pp. 242-247. Council of South Carolina Professional Archaeologists, Columbia.

Coe, Joffre L.
1952 The Cultural Sequence of the Carolina Piedmont. In *Archaeology of the Eastern United States*, edited by J.B. Griffin, pp. 301-311. University of Chicago Press, Chicago.

1964 The Formative Cultures of the Carolina Piedmont. *Transactions of the American Philosophical Society* 54(5).

Daniel, I. Randolph, Jr.
1992 Early Archaic Settlement in the Southeast: A North Carolina Perspective. In *Paleoindian and Early Archaic Period Research in the Lower Southeast: A South Carolina Perspective*, edited by David G. Anderson, Kenneth E. Sassaman, and Christopher Judge, pp. 68-77. Council of South Carolina Professional Archaeologists, Columbia.

Drucker, Lesley
1997 *Preliminary Investigation of Site 38RD1082, Kiva Construction Project, Richland County, South Carolina*. Resource Studies Series 165. AF Consultants, Columbia.

Ferguson, Leland G.
1971 *South Appalachian Mississippian*. Ph.D. dissertation, University of North Carolina, Chapel Hill. University Microfilms, Ann Arbor, Michigan.

Goodyear, Albert C., III and Glen T. Hanson
1989 *Studies in South Carolina Archaeology: Essays in Honor of Robert L. Stephenson*. Anthropological Studies 9. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Goodyear, Albert C., John H. House, and Neal W. Ackerly
1979 *Laurens-Anderson: An Archaeological Study of the Inter-Riverine Piedmont*. Anthropological Studies 4, Occasional Papers of the Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Green, Edwin C.
1932 *A History of Richland County*. R.L. Bryan, Columbia.

Gunn, Joel D. and Kathy Wilson
1993 *Archaeological Data Recovery Investigations at Sites 38CT54 and 38CT58 Along the S.C. 151 Jefferson Bypass, Chesterfield County, South Carolina*. Garrow and Associates, Raleigh. Submitted to the S.C. Department of Highways and Public Transportation, Columbia.

Hasselton, George M.
1974 Some Reconnaissance Geomorphological Observations in Northwestern South Carolina and Adjacent North Carolina. *Geologic Notes* 18(4):60-67.

Hilliard, Sam B.
1984 *Atlas of Antebellum Southern Agriculture*. Louisiana State University Press, Baton Rouge.

House, John H. and Ronald W. Wogaman
1978 *Windy Ridge: A Prehistoric Site in the Inter-riverine Piedmont of South Carolina*. Anthropological Studies 3. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Johnson, Thomas F.
1970 *Paleoenvironmental Analysis and Structural Petrogenesis of the Carolina Slate Belt near Columbia, South Carolina*. Unpublished M.S. Thesis, Department of Geology, University of South Carolina, Columbia.

Judge, Christopher and Jonathan Rood
1999 *Report on a Limited Archaeological Reconnaissance of the Kaiser Industrial Site, Richland County, South Carolina*. Ms. on file, Department of Natural Resources, South Carolina Heritage Trust Program.

Kovacik, Charles F. and John F. Winberry
1987 *South Carolina: The Making of a Landscape*. University of South Carolina Press, Columbia.

Küchler, A.W.
1964 *Potential Natural Vegetation of the Conterminous United States*. Special Publication No. 36. American Geographical Society, New York.

Lawrence, Carl B.
1978 *Soil Survey of Richland County, South Carolina*. U.S.D.A., Soil Conservation Service, Washington, D.C.

Lipscomb, Terry W.
1991 *Battles, Skirmishes, and Actions of the American Revolution in South Carolina*. South Carolina Department of Archives and History, Columbia.

Lowry, M.W.
1934 *Reconnaissance Erosion Survey of the State of South Carolina*. United States Department of Agriculture, Soil Conservation Service.

Mathew, William M.
1992 *Agriculture, Geology, and Society in Antebellum South Carolina: The Private Diary of Edmund Ruffin, 1843*. University of Georgia Press, Athens.

Mills, Robert
1972 [1826]*Statistics of South Carolina*. Hurlburt and Lloyd, Charleston. 1972 facsimile ed. Reprint Press, Spartanburg, South Carolina.

Michie, James L.
1966 The Taylor Point. *The Chesopiean* 4(5-6):123.

1977 *The Late Pleistocene Human Occupation of South Carolina*. Unpublished Honor's Thesis, Department of Anthropology, University of South Carolina, Columbia.

1992 The Taylor Site: An Early Occupation in Central South Carolina.. In *Paleoindian and Early Archaic Period Research in the Lower Southeast: A South Carolina Perspective*, edited by David G. Anderson, Kenneth E. Sassaman, and Christopher Judge, pp. 208 - 241. Council of South Carolina Professional Archaeologists, Columbia.

n.d. *The Discovery of Old Fort Congaree*. Research Manuscript Series 208. S.C. Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Moore, John Hammond
1993 *Columbia and Richland County: A South Carolina Community*. University of South Carolina Press, Columbia.

Murphy, Carolyn Hanna
1995 *Carolina Rocks: The Geology of South Carolina*. Sandlapper Publishing, Orangeburg, South Carolina.

Neuffer, Claude Henry
1981 *Names in South Carolina*. 28:9.

News and Courier
1884 *South Carolina in 1884: A View of the Industrial Life of the State*. News and Courier Presses, Charleston.

Oliphant, Mary C. Simms
1964 *The History of South Carolina*. Laidlaw Brothers, River Forest.

Oliver, Billy L.
1981 *The Piedmont Tradition: Refinement of the Savannah River Stemmed Point Type*. Unpublished Master's Thesis, Department of Anthropology, University of North Carolina, Chapel Hill.

1985 Tradition and Typology: Basic Elements of the Carolina Projectile Point Sequence. In *Structure and Process in Southeastern Archaeology*,

edited by Roy S. Dickens and H. Trawick Ward, pp. 195-211. The University of Alabama Press, University.

Oliver, Billy L., Stephen R. Claggett, and Andrea Lee Novick

1986 Lithic Analysis. In *Indian and Freedmen Occupation at the Fish Hall Site (38BU805), Beaufort County, South Carolina*, edited by Michael Trinkley, pp. 183-207. Research Series 1. Chicora Foundation, Inc., Columbia.

Phelps, David S.

1983 Archaeology of the North Carolina Coast and Coastal Plain: Problems and Hypotheses. In *The Prehistory of North Carolina: An Archaeological Symposium*, edited by Mark A. Mathis and Jeffrey J. Crow, pp. 1-52. North Carolina Division of Archives and History, Department of Cultural Resources, Raleigh.

Ryan, Thomas M.

1972 *Archaeological Survey of the Columbia Zoological Park, Richland and Lexington Counties, South Carolina*. Research Manuscript Series 37. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Sassaman, Kenneth E.

1983 *Middle and Late Archaic Settlement in the South Carolina Piedmont*. Unpublished master's thesis. Department of Anthropology, University of South Carolina, Columbia.

1985 A Preliminary Typological Assessment of MALA Hafted Bifaces from the Pen Point Site, Barnwell County, South Carolina. *South Carolina Antiquities* 17:1-17.

1993 *Early Woodland Settlement in the Aiken Plateau: Archaeological Investigations at 38AK157, Savannah River Site, Aiken County, South Carolina*. Savannah River Archaeological Research Papers 3. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

1995 The Cultural Diversity of Interactions Among Mid-Holocene Societies of the American Southeast. In *Native American Interactions: Multiscalar Analyses and Interpretations in the Eastern Woodlands*, edited by M.S. Nassanmey and K.E. Sassaman. University of Tennessee Press, Knoxville (in press).

Sassaman, Kenneth E. and David G. Anderson

1990 Typology and Chronology. In *Native-American Prehistory of the Middle Savannah River Valley*, edited by Kenneth E. Sassaman, Mark J. Brooks, Glen T. Hanson, and David G. Anderson, pp. 143-216. Savannah River Archaeological Research Publication 1. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

1994 *Middle and Late Archaic Archaeological Records of South Carolina: A Synthesis for Research and Resource Management*. Council of South Carolina Professional Archaeologists, Columbia.

Sassaman, Kenneth E., Mark J. Brooks, Glen T. Hanson, and David G. Anderson

1990 *Native American Prehistory of the Middle Savannah River Valley.*

Savannah River Archaeological Research Papers 1. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

South, Stanley A.
1959 *A Study of the Prehistory of the Roanoke Rapids Basin*. Master's thesis, Department of Sociology and Anthropology, University of North Carolina, Chapel Hill.

State Department of Agriculture, Commerce, and Immigration
1907 *Handbook of South Carolina: Resources, Institutions and Industries of the State*. The State Company, Columbia.

Townsend, Jan, John H. Sprinkle, Jr., and John Knoerl
1993 *Guidelines for Evaluating and Registering Historical Archaeological Sites and Districts*. Bulletin 36. National Park Service, National Register of Historic Places, Washington, D.C.

Trimble, Stanley W.
1974 *Man-Induced Soil Erosion on the Southern Piedmont, 1700-1970*. Soil Conservation Society of America, Aukey, Iowa.

Trinkley, Michael
1976 *A Typology of Thom's Creek Pottery from the South Carolina Coast*. Unpublished Master's thesis. Department of Anthropology, University of North Carolina, Chapel Hill.

1980 *Additional Investigations at 38LX5*. South Carolina Department of Highways and Public Transportation, Columbia.

1993 *Historical, Architectural, and Archaeological Survey of the Palmetto Iron Works, 1802 Lincoln Street, City of Columbia*. Research Contribution 109. Chicora Foundation, Inc., Columbia.

Trinkley, Michael, Debi Hacker, and Natalie Adams
1993 *Life in the Pee Dee: Prehistoric and Historic Research on the Roche Carolina Tract, Florence County, South Carolina*. Research Series 39. Chicora Foundation, Inc., Columbia.

U.S. Department of Agriculture
1983 *Yadkin-Pee Dee River Basin, North and South Carolina — Forest Resources*. U.S. Department of Agriculture, Washington, D.C.

Voorhies, M.R.
1974 Pleistocene vertebrates with boreal affinities in the Georgia Piedmont. *Quaternary Research* 4:85-93.

Walthall, John A.
1980 *Prehistoric Indians of the Southeast: Archaeology of Alabama*. University of Alabama Press, University.

Ward, Trawick
1983 A Review of Archaeology in the North Carolina Piedmont: A Study of Change. In *The Prehistory of North Carolina: An Archaeological Symposium*, edited by Mark A. Mathis and Jeffrey J. Crow, pp. 53-81. North Carolina Division of Archives and History, Department of Cultural Resources, Raleigh

Waring, Antonio J., Jr.
1968 The Refuge Site, Jasper County, South Carolina. In *The Waring Papers: The Collected Works of Antonio J. Waring, Jr.*, edited by Stephen B. Williams, pp. 198-208. Papers of the Peabody Museum of

Archaeology and Ethnology 58.

Watts, W.A.

1970 The Full Glacial Vegetation of Northwestern Georgia. *Ecology* 51:17-33.

1971 Postglacial and Interglacial Vegetation History of Southern Georgia and Central Florida. *Ecology* 52:666-690.

1975 Vegetation Record for the Last 20,000 Years from a Small Marsh on Lookout Mountain, Northwestern Georgia. *Geological Society of America Bulletin* 86:287-291.

1980 Late-Quaternary Vegetation History at White Pond on the Inner Coastal Plain of South Carolina. *Quaternary Research* 13:187-199.

Whitehead, Donald R.

1965 Palynology and Pleistocene phytogeography of unglaciated eastern North America. In *The Quaternary of the United States*, edited by H.E. Wright, Jr. and David G. Frey, Princeton University Press, Princeton.

1967 Studies of Full-Glacial Vegetation and Climate in Southeastern United States. In *Quaternary Paleoecology*, edited by E.J. Cushing and H.E. Wright, pp. 237-248. Yale University Press, New Haven.

1972 Developmental and Environmental History of the Dismal Swamp. *Ecological Monographs* 42:301-315.

1973 Late-Wisconsin Vegetational Changes in Unglaciated Eastern North America. *Quaternary Research* 3:621-631.

Williams, Stephen B.

1965 The Paleoindian era: Proceedings of the 20th Southeastern Archaeological Conference. *Southeastern Archaeological Conference Bulletin* 2.

Yohe, Robert M., II

1996 Analysis of Flaked Stone Artifacts. In *Archaeological Laboratory Methods: An Introduction*, edited by Mark Q. Sutton and Brooke S. Arkush, pp. 39-68. Kendall/Hunt Publishing, Dubuque, Iowa.